COMPUTERWORLD

Biz Units' New Task: Prove Value of IT

But shift of ROI duties not easy, IT managers say

BY THOMAS HOFFMAN
LAKE BUENA VISTA, FLA.

One of the more controversial predictions made by Gartner Inc. analysts at the consulting firm's Symposium/ITxpo 2002 conference here last week was that business units will eventually become responsible for proving the potential value of IT investments.

But before IT managers crack open the champagne, a word of warning: Technology professionals whose companies have already put the onus of justifying IT projects on business managers said the transition doesn't come without some pain.

"There was a lot of pushback from the business side because they didn't want ownership of that," said David Dart, CIO at HVB America Inc. in New York.

Dart and his boss, HVB America's chief operating officer, pushed the bank's business units to take responsibility for calculating potential returns on IT investments two years ago. Despite initial resis- *ROI, page 53*

OUR TAKE

Patricia Keefe says predictions at Gartner's ITxpo were decidedly cautious (page 20); Frank Hayes says the predictions weren't predictions at all (page 54).

Longhorn Ship Date Muddled

Users unable to plan for next big Windows release

BY CAROL SLIWA
ORLANDO

Slipping dates for the next major Windows release, codenamed Longhorn, have fueled speculation that Microsoft Corp. may be plotting an interim release.

But Rogers Weed, corporate vice president in Microsoft's Windows product management group, told *Computerworld* last week that no such interim release is being discussed by executives in the operating system group.

"I can't tell you that there aren't some developers over in a building somewhere discussing it," Weed said. "But in the management meetings I sit in for the Windows business, it's not being discussed."

Weed said the focus is "all about Longhorn" and "how to get the best Longhorn release we can get." He noted that it's difficult to pinpoint a ship date for Longhorn "because of how far away it is." But he said he can "at least give people some comfort level" that *Longhorn, page 16*

Wintel Advances Draw High-End Unix Users

Cost-conscious IT shops attracted by cheaper technology, promise of Itanium

BY JAIKUMAR VIJAYAN

Despite performance issues surrounding Intel Corp.'s 64-bit Itanium chip, the overall lower cost promised by large Windows/Intel servers is luring some users in a tough economy to ditch their high-end Unix systems.

Unisys Corp., one of the few vendors of large Wintel servers, this week will announce that Milwaukee-based Fortis Health has completed the installation of three Unisys ES7000 enterprise servers to host several applications that had run on Unix and IBM mainframe sys-

TECHNOLOGY SWITCH

tems. One of the servers includes an eight-way Itanium partition.

Meanwhile, Norstan Communications Inc., a Minneapolis-based integrator of communication services, has just installed a 24-way Unisys ES7000 that it will use to run its core human resources and customer relationship management applications.

All 24 processors are 32-bit, but Norstan will eventually switch to Itanium. The company is moving away from an environment in which Sybase Inc. databases run on Hewlett-

Packard Co. Unix to one in which Microsoft SQL Server runs on Windows.

For each company, the lower cost of ownership associated with Wintel technology was a crucial factor.

"One of the biggest reasons we looked at it was the cost, not just of the hardware, but of the software as well," said Steve Willems, CIO at Norstan.

The company didn't say how much it was saving by moving to the Unisys servers. But it's enough to enable Norstan to build a clustered, high-availability configuration for increased reliability using the savings, Willems said.

And moving to Wintel will also allow Norstan to take *Wintel, page 53*

Bridging DATA ISLANDS

Integrating data from varied sources and delivering information to the user in a single coherent view is increasingly important to large companies. There are many ways to approach data integration, but all of them can be difficult, expensive and error-prone. In a series of case studies, we examine several options for integrating data. **STORY BEGINS ON PAGE 23.**

DAVID HOLLENBACH

NEWSPAPER

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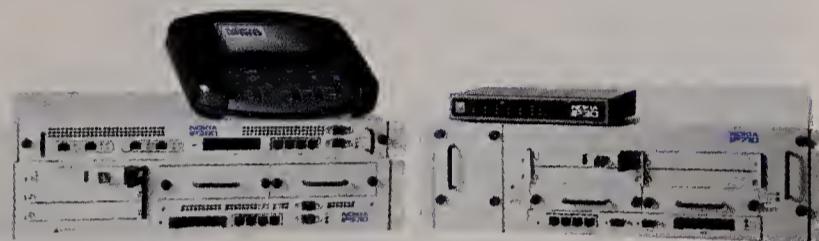
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10.14.02

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In the Technology section: Route control technologies can optimize Internet traffic flow and reduce costs, but the high initial investment means they should be used judiciously. **Page 26**

Outsourcing: More Than Meets the Eye

In the Management section: Utility-based computing services sound good, but IT users can end up paying for more than what they actually use. **Page 37**

RICHARD LILLASH

ONLINE

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35th Anniversary QuickPoll Results

What technology will have the most impact over the next 10 years?

- Portable electronics — 15.0%
- Merger of biology and IT — 30.2%
- Speech recognition — 14.9%
- Chip advancements — 10.0%
- Optical networking — 9.2%
- Real-time B2B systems — 9.0%
- Data mining — 6.7%
- Other — 5.0%
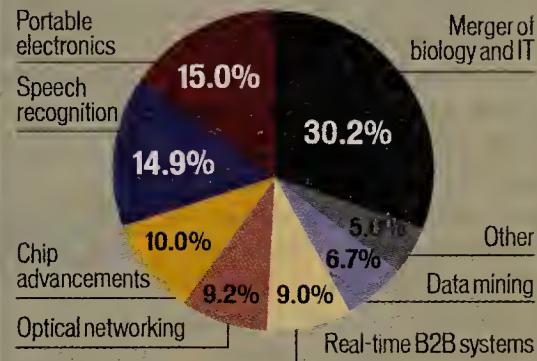
Take this week's QuickPoll at **www.computerworld.com**.

SOURCE: COMPUTERWORLD.COM NONSCIENTIFIC SURVEY, 599 VOTES

The Best of the Web

KNOWLEDGE CENTER: What are the top 10 ways to cut IT costs? What are the top IT functions likely to be outsourced? Mitch Betts' latest Best of the Web: Management Roundup compiles links to these intriguing items from the Internet. ○ **QuickLink a2620**

Bringing Suppliers on Board

ONLINE EXTRA: After reading "Cost Savings and Collaboration Drive B2B E-Payments" on page 41, head to our Web site to find out how Sprint Corp. is motivating its suppliers to process bills online. ○ **QuickLink 33257**

News From Your Industry

KNOWLEDGE CENTER: Read stories broken out by manufacturing, retail, defense and other sectors. Head to our new Browse by Industry page. ○ **QuickLink a2610**

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○ On some pages in this issue, you'll see a QuickLink code pointing to additional, related content on our Web site. Just enter that code into our QuickLink box, which you'll see at the top of each page on our site.

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Knowledge Centers
○ **QuickLink a2570**

The Online Store
○ **QuickLink a2420**

Security Hole in Outlook Express

Microsoft Corp. warned of a security hole that could let attackers execute malicious code on systems running its Outlook Express e-mail client software. Microsoft gave the flaw its highest severity rating and said users of Outlook Express 5.5 and 6.0 should install a new software patch. The company added that its full-function Outlook e-mail client isn't vulnerable to the problem.

More Cuts at Lucent As Q4 Loss Grows

Lucent Technologies Inc. said it plans to cut another 10,000 jobs during the next 12 months, a move that will reduce its workforce to about 35,000 people. The Murray Hill, N.J.-based networking vendor also disclosed that the loss for its fourth quarter, which ended Sept. 30, will be much larger than it had forecast because of restructuring charges and other write-downs.

Judge Rules Intel Infringed on Patents

A U.S. District Court judge in Texas ruled that technology used by Intel Corp. in its 64-bit Itanium processors infringes on two patents held by Huntsville, Ala.-based Intergraph Corp. Under a deal signed by the companies in April, the ruling could require Intel to pay Intergraph $150 million plus another $100 million if it loses an appeal. Intel said it will ask the judge to reconsider the ruling.

Kmart Looks to Sell Net Access Assets

Kmart Corp. asked the U.S. Bankruptcy Court in Chicago to approve the sale of its BlueLight.com subsidiary's Internet access business assets to United Online Inc. in Westlake Village, Calif. Troy, Mich.-based Kmart said the $8.4 million deal won't affect its Kmart.com online shopping site.

Supply Chain Standards Up for Federal Funding

Bill calls for $47M to help accelerate integration efforts

BY PATRICK THIBODEAU
WASHINGTON

CONGRESS IS considering legislation authorizing $47 million to help develop supply chain integration standards that bill backers say could save a variety of industries millions of dollars.

The legislation, the Enterprise Integration Act of 2002, has been approved by the U.S. House and is pending in the Senate. It has no apparent opposition and is backed by industry groups.

Efforts to establish supply chain standards are already well under way in various industries.

For instance, RosettaNet, a nonprofit consortium in Santa Ana, Calif., that sets standards for the high-tech sector, is working on global standards. But problems remain in other industries.

The legislation was prompted by a landmark 1999 study by the National Institute of Standards and Technology (NIST) that estimated that the auto industry alone could see $1 billion in supply chain savings annually with improved enterprise integration. NIST said "similarly dramatic savings" are possible in industries such as shipbuilding and home construction.

Inefficiencies Add Up

The report's conclusions remain applicable today, according to a NIST official. "There are a lot of inefficiencies due to the lack of effective standardization, and they add up,"

said Gregory Tassey, a NIST senior economist, in an interview last week.

The intent of standards is to streamline interaction throughout a supply chain, to speed up transactions, and to reduce inventory and delays. If a big automaker, for instance, changes a design specification in a bumper, its suppliers could quickly and easily see how the new specification affects their components.

Jeff Eck, who heads XML efforts at business-to-business services provider GE Global eXchange Services in Gaithersburg, Md., said one of NIST's strengths is its ability to provide vendor-neutral testing environments to determine product interoperability.

These standards efforts will move ahead with or without congressional support. Manufacturers "realize there is more opportunity to squeeze out cost" from the supply chain, said Eck. Without the congressional funding, "it might happen slower, but it will happen."

The incentives for companies to push for standards aren't always apparent. The savings are primarily in the supply chain itself, said Daniel Garretson, an analyst at Forrester Research Inc. in Cambridge, Mass. "It's a mismatch between where the savings are [with the suppliers] and where the power is" with manufacturers, Garretson said. ▶

CAD/CAM Conundrum

ADDED COST: Without standards compatibility among computer-aided design and manufacturing (CAD/CAM) systems, users have to invest in translators.

FORCED IT INVESTMENT: In some cases, large equipment makers force their suppliers to buy the same CAD/CAM systems that they use.

WHAT NIST WILL DO: The legislation would help NIST accelerate work on the Standards for the Exchange of Product Design Data, which can be used to support data exchanges across a wide range of industries.

IBM, Sun Release Unix Updates

IBM catches up; Sun focuses on memory

BY JAIKUMAR VIJAYAN

IBM last week released an updated version of its AIX Unix operating system, offering new partitioning and capacity-on-demand technology. And rival Sun Microsystems Inc. introduced a new version of Solaris, featuring capabilities aimed at boosting system performance and network management.

IBM's AIX 5L Version 5.2 features support for a mainframelike dynamic logical partitioning capability that allows administrators to carve up a single large IBM Unix server into multiple virtual servers as small as a single processor with 250MB of memory.

The technology allows system resources, including processors and memory, to be dynamically assigned to such partitions as needed without having to reboot the system or even bring down the partition.

Complementing this ability is a capacity-upgrade-on-demand feature that allows users to buy excess processor capacity upfront and then switch it on when it's time to upgrade.

The new support for dynamic partitioning and capacity on demand closes a vital gap in IBM's Unix story, said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H. Sun has touted its hardware-based dynamic partitioning on its high-end Unix servers since 1997. And Hewlett-Packard Co. has offered capacity on demand with its Superdome servers for well over a year.

"IBM was clearly behind in these areas," Haff said. "It has largely caught up with rivals."

Sun's new Solaris 9 9/02, meanwhile, is the first enhancement to Solaris 9 since it was announced in May. The main focus of the Sun release is more efficient use of memory, said Rich Partridge, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y.

The new Solaris version comes with a Memory Placement Optimization function that boosts large system performance by placing memory closer to the executing processor, said Bill Moffit, a Solaris line manager. Solaris 9 9/02 also features an integrated Solaris 9 IP quality of service capability that allows administrators to allocate network bandwidth to applications based on their importance.

The new releases of Solaris and AIX are available now. ▶

KEY FEATURES

AIX 5L Version 5.2

■ Support for dynamic partitioning for better systems utilization.

■ Capacity upgrade on demand for easier upgrades.

■ Support for a new Cluster Systems Management technology for managing a cluster of mixed Unix and Linux servers.

Solaris 9 9/02

■ New Memory Placement Optimization function for boosting system performance.

■ IP quality of service capability to guarantee network bandwidth to key applications.

■ More Sun ONE middleware integration.

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◐ QuickLink k1500
www.computerworld.com

XDocs Designed to Help Users Design, Modify XML Forms

But confusion, key unanswered questions cloud Microsoft's pitch of new technology

BY CAROL SLIWA
ORLANDO

Microsoft Corp.'s plans to deliver software that can help users design, modify and work with XML-based forms, with little or no coding, have sparked a wild mix of reactions — from confusion to rabid enthusiasm — since they were announced last week.

The grand vision is to make it easy for users to submit data to or extract data or reports from important business applications, such as customer relationship or supply chain management systems.

But with details still sketchy, some level of confusion isn't surprising. For starters, Microsoft hasn't even been clear about whether the software, code-named XDocs, will be sold as a separate product.

Company literature refers to XDocs as the newest member of the Microsoft Office family, but officials wouldn't say whether that means XDocs, which is due in the middle of next year, will be part of the Office suite of applications, like Word and Excel are, or part of the Office "family" of products, which includes Project and FrontPage.

John Vail, director of product management for Microsoft's information worker product management group, said packaging, licensing and pricing details have yet to be resolved.

The Latest Killer App?

But some analysts are looking beyond the dearth of details to the potential long-term impact of XDocs. Ted Schadler, an analyst at Forrester Research Inc. in Cambridge, Mass., predicted that the new software will be a "killer app" that shifts control of corporate data from the IT department into the hands of all employees, who will gain an easier way to access applications from vendors such as SAP AG and Siebel Systems Inc.

"It's going to absolutely upset the apple cart," Schadler said, referring to the "classic" controlling attitude that IT departments have about their data centers. "Let chaos reign. That's a good thing. Business ultimately will win."

But Schadler acknowledged that it could take 10 years before companies get their applications upgraded and put the necessary XML infrastructure in place for XDocs to have the impact he foresees.

The front-end part of XDocs won't be the issue. Microsoft is trying to make it as easy to create XML forms as it is to build HTML pages using its FrontPage tool, which doesn't require HTML knowledge. Through the familiar Office interface, users can define the structure of the information to be gathered and the type of content each data element will contain.

But for the connections to be made to a company's databases or business applications, the back-end systems must support XML natively in order for XDocs to be of "true value," said Scott Bishop, a Microsoft Office product manager. Today, many corporate IT shops have systems that don't yet support XML natively.

Corporate IT developers and major and independent software vendors are expected to take on the brunt of the work to ensure that connections to back-end systems can be made via XML-based Web services.

"It will require help from Microsoft and other people to assemble all the services together," said David Yockelson, an analyst at Meta Group Inc. in Stamford, Conn.

He expects a community of independent software vendors to build services that link XDocs and back-end systems.

Yockelson also said he thinks Microsoft would be wise to make XDocs part of its Office suite, so users would have some incentive to upgrade to a new version.

Daryl Plummer, an analyst at Stamford, Conn.-based Gartner Inc., said he thinks XDocs should be part of Microsoft's Visual Studio development tool suite, in addition to Office, so "you have a

chance of getting it ingrained within the IT mentality." He said it's still unclear how much value XDocs will have to corporate IT.

"What is likely to happen is that [XDocs is] going to be picked up by rebel developers and power users in the organization, and they're going to start doing things much like people did with FoxPro and Clipper way back when," Plummer predicted. "And then one day IT is going to realize there's a lot out there." ▶

Merrill Lynch Unit Puts Software Development Process to the Test

A three-year effort ends in Carnegie Mellon certification

BY LUCAS MEARIAN

A unit of Merrill Lynch & Co. last week achieved a software development certification that in the past has typically been applied to companies in industries that can't afford faulty applications, such as aerospace and life sciences.

Merrill Lynch said it was given a Level 5 rating by the Software Engineering Institute (SEI) at Carnegie Mellon University in Pittsburgh. And as difficult as the three-year certification process was, the New York-based firm said it achieved quality assurance improvements and savings in development time that made the work well worth the effort.

"So many big software projects fall apart, and you don't find out until very late in the process. We got rid of a lot of those problems," said Byron Vielehr, chief technology officer at Merrill Lynch's U.S. Private Client division.

As part of the certification effort, the Private Client unit put in place a development methodology that gives IT managers the ability "to rigorously control the process and understand where you're deviating from the plan you laid out," Vielehr added (see box).

Merrill Lynch's insurance software development unit, made up of 300 workers at its Jacksonville Solutions Center in Jacksonville, Fla., received the SEI's

Level 5 certification. According to the SEI, the rating means the unit has a robust development methodology that includes metrics designed to foster continuous improvements in software projects.

Citing reasons of privacy, the SEI wouldn't disclose the identities of other companies that have qualified for Level 5 status.

However, Dick Heiman, an analyst at IDC in Framingham, Mass., said he's not aware of any other financial services firm that has been given that rating.

Another 200 developers involved in other business areas at Merrill Lynch's Jack-

sonville facility received a Level 3 rating from the SEI.

Vielehr said that during the next year, he hopes to implement standardized development processes for all 2,000 of the Private Client unit's software developers, who support Merrill Lynch's brokerage, insurance, mutual fund, banking and 401(k) businesses.

Art vs. Science

Heiman said the standardization of development methods is becoming more common at companies that have traditionally seen the creation of code as an art, not science. The prevalence of Web-based applications is a big reason, Heiman added.

For example, software is "no longer in the back room of the insurance company," he said. "People are on the Web buying insurance policies. The impact of failure has increased." ▶

Lexmark Abandons CRM Project

Printer maker Lexmark International Inc. said it has dropped a customer relationship management (CRM) software project and will take a $15.8 million charge against its third-quarter earnings as a result. Oracle Corp. confirmed that the project included its CRM applications but said the software "was a small part of a complex, highly customized implementation" by Lexington, Ky.-based Lexmark.

HP Adds Web Site For Corporate Users

Hewlett-Packard Co. launched a new e-business Web site that lets corporate users in the U.S. place orders for all of HP's products, including the ones the company acquired in May when it bought Compaq Computer Corp. HP said the Web site can also be used to communicate with its sales force and track the status of orders dating back to before the Compaq acquisition.

Reuters, Microsoft Ready IM Service

London-based Reuters Group PLC and Microsoft Corp. this week plan to release an instant messaging (IM) service aimed at financial services firms. The service includes security-oriented features such as message logging, auditing and encryption, Reuters said. The company announced its plans in June and has been running tests at about 30 financial institutions [QuickLink 30759].

Short Takes

ORACLE released its Collaboration Suite, a set of messaging tools aimed at Microsoft Exchange and Outlook users. . . . IBM agreed to buy EADS Matra Datavision, an IT consultancy in Paris that focuses on product life-cycle management software. The price wasn't disclosed.

MARK HALL • ON THE MARK

Tape Backup Systems Still Losing Ground . . .

. . . to disk drives. Research projects (*http://now.cs.berkeley.edu/Td/*) are proving what most people intuitively know: **Tape's heyday in the enterprise is over.** Not only is the cost per gigabyte falling faster on Winchester drives than on tape, but their capacities are also growing more rapidly. Add to this improved software for disk-to-disk secondary storage management for the enterprise and things look bleak, indeed, for tape in the long run. Tomorrow, Avamar Technologies Inc. in Irvine,

Calif., hopes to add to tape's woes by introducing its Axion disk-to-disk storage system. It scales to hold a staggering 1 exabyte (1,000TB) of data. CEO Kevin Daly estimates a typical installation will be 2TB to 3TB and run about $170,000. Piling on to tape this week is Nexsan Technologies Inc., with its InfiniSAN D2D Professional software for its disk backup system. The new version now supports Unix, Linux, OpenVMS and the Mac to add to its Windows compatibility. ■ WebEx Communications Inc. hasn't won any friends in the travel industry with its occasionally **flaky but certainly useful-in-these-times online meeting service.** But it may find a buddy or two on IT help desks with its Support Center With Media Tone, the

peculiarly named heir to the WebEx On-Call service. Support Center uses the WebEx browser plug-ins to give remote help desk workers permission-based control of a user's desktop. Unlike traditional point-to-point, PC-to-PC remote-control applications, WebEx rents its service over the Internet, so domain experts can be located anywhere. Common fixes can be recorded and played back to users, reducing demand for help desk personnel. Well, maybe the company will lose friends there, too. ■ Voice over IP (VOIP) has been slow to catch on, in part because it's difficult for companies to predict the **effect of adding VOIP to existing networks.** That's something Psytechnics Ltd. in Ipswich, England, thinks it will resolve when

Psyvoip 2.0 ships in February. The software will be able to simulate varying levels of VOIP traffic and determine what effect they will have on current network performance. The product might get the venture-capital-funded English start-up more attention stateside. And it has already caught the eye of Palo Alto, Calif.-based Agilent Technologies Inc., which later this month ships Psyvoip 1.0 metric software in its Network Analyzer. ■ VOIP is likely to be **another security headache for communications managers,** who are only just beginning to secure PBX phone lines into their network, claims Lee Sutterfield, CEO of SecureLogix Corp. in San Antonio. That's why he's got developers working on a VOIP module for the company's Enterprise Telephony Management (ETM) system. The resulting Tele-Wall Net security software will be ready in about 12 months. But this week, SecureLogix will add TeleVPN and TeleAudit to ETM 4.0. The ETM product is used to define specific uses for every PBX line, and it identifies the time division multiplexing stream on each line to enforce policies. ■ Search no more. That's the way some people feel when burdened with endless Google hits, none of which seems to be spot on. IPhrase Technologies Inc. in Cambridge, Mass., thinks the 4.0 release this week of its One Step natural-language portal search tool cuts through the clutter with the intelligence to edit out the unnecessary. Speaking of which, this release of **One Step dumps the Windows GUI** for a browser. And it can now search structured and unstructured data in French, Spanish and German as well as English. *Auf Wiedersehen.* ▶

Almost Here

IBM was vague about delivery of the 5.1 versions of Directory Server and Directory Integrator. They go gold next month.
. . . .
Sphera Corp.'s HostingBusiness Suite will be available at the end of this month with out-of-the-box managed host services.

HP Beats Dell in Huge Home Depot PC Deal

Will supply 40,000 PCs to retailer

BY LINDA ROSENCRANCE

Hewlett-Packard Co. last week said that it has signed a deal to provide 40,000 PCs to The Home Depot Inc., beating out Dell Computer Corp. in the process.

Neither Atlanta-based Home Depot nor HP would comment on the value of the deal. HP's Web site lists the average price of the Compaq Evo D510 as $1,159. While that price would value the deal at

more than $46 million, manufacturers typically offer substantial discounts with such high-volume orders.

"Our account executives went in and tried to understand what Home Depot wanted and needed in order to get the job done," said HP spokesman Bill Carver, confirming the win over Dell. "If we could help the customer accomplish what they needed to accomplish, we knew we had a good chance" to get the contract.

Dell spokesman John Weisblatt confirmed that Dell had

sought the Home Depot project, but he added that his company has also had some recent customer wins.

For example, Dell last week announced that Creative Artists Agency, a talent and literary agency in Beverly Hills, Calif., had standardized on Dell servers and storage systems.

Carver said that while the Home Depot deal wasn't HP's largest, it was important. "This is a big deal to be able to work with a company of the stature of Home Depot," he said.

Home Depot's Plans

HP's announcement comes barely a week after Home Depot said it would spend tens of millions of dollars to develop and deploy a 60TB data ware-

house based on IBM's technology [QuickLink 33375].

In a statement, Home Depot said the Compaq Evo D510 PCs will support two programs designed to improve operations, customer service and employee education at its 1,456 stores. The PCs will support Home Depot's Store Technology Enhancement Project, an effort to standardize and upgrade its in-store technology infrastructure.

Barbara Sanders, chief architect at Home Depot, said that by shifting to one type of PC, employees will be more productive, because they will spend less time trying to call the help desk to resolve computer issues and more time on the sales floor, assisting customers. ▶

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WorldCom, Sprint Add VOIP Services

Plan IP telephony offerings; text and video to come

BY MATT HAMBLEN

WORLDCOM INC. and Sprint Corp. last week announced rival IP-based telephony services designed to evolve into converged voice and data network offerings as that technology becomes more feasible.

WorldCom formally detailed a managed telephony service that first came to light in July, when *Computerworld* obtained internal WorldCom documents that described the plans [QuickLink 31482]. The WorldCom Connection service is initially limited to voice over IP (VOIP). But it will be expanded to support text and video over IP, starting by the end of the year, said Barry Zipp, senior director of product marketing at WorldCom.

Sprint, meanwhile, unveiled an IP-based voice service it developed jointly with Cisco Systems Inc. Sprint said the IP Telephony Services offering will run over its native IP network and utilize Cisco's Architecture for Voice, Video and Integrated Data technology.

Analysts said all the major network operators are starting to offer IP-based services aimed at reducing networking and telephony costs. Other companies that have launched VOIP services include AT&T Corp., New York-based Verizon Communications, London-based Cable & Wireless PLC and Amsterdam-based Equant NV.

But WorldCom seems to

Telecompetition

WORLDCOM CONNECTION:
- Runs over any network architecture supported by WorldCom, including IP, frame relay and Asynchronous Transfer Mode.

- Monthly fees of $300 per site for large corporate customers.

- Unlimited calls to sites on WorldCom's network; 3 cents per minute for calls off the network.

SPRINT'S IP TELEPHONY:
- Operates on Sprint's 100% native IP network, with fiber-optic transmissions at the core.

- Pricing wasn't disclosed.

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have made such services more central to its strategy than its rivals have, according to Courtney Quinn and Danny Klein, analysts at The Yankee Group in Boston. In particular,

WorldCom is touting its support for the Session Initiation Protocol (SIP) standard.

SIP is an Internet Engineering Task Force protocol for user sessions that involve multimedia elements, such as voice and video. Klein said the standard is being tested by network carriers, but he added that its promise for convergence services is still years off.

Even WorldCom is hedging its bets: The company said WorldCom Connection customers that don't want to migrate to a pure IP setup built around SIP can use existing analog phones and digital private branch exchange systems.

While WorldCom has offered VOIP services for more than a year, WorldCom Connection applies to local as well as long-distance calls over its data network. It also includes a quality-of-service component that lets users give priority to key applications.

WorldCom has faced questions about whether customers would sign new contracts with the company in the wake of its Chapter 11 bank-

ruptcy protection filing in July.

But the WorldCom Connection rollout is an attempt to show "that we have complete confidence we will emerge from bankruptcy," Zipp said. "We're not investing as much in new products as we were two years ago, but Connection is one area we view as a long-term growth area."

Jeff Kagan, an independent analyst in Atlanta, said he doesn't expect the new service to be a magic bullet for WorldCom. But the offering could help the company retain some of its key corporate users, Kagan added.

Sprint said its new telephony offering makes use of the IP Class of Service program the company announced earlier this month. It supports converged voice, video and other IP traffic over a single connection while giving priority to time-sensitive applications during congested periods, the company said. ◗

Paul Roberts of the IDG News Service contributed to this report.

FCC Investigates Ways To Help Telecom Sector

BY PATRICK THIBODEAU
WASHINGTON

Finding ways to restore health to the ailing telecommunications sector is a top priority for the U.S. Federal Communications Commission.

But the forecast for the industry overall, which has lost approximately 500,000 jobs and is saddled with as much as $1 trillion in debt, remains gloomy, the commission was told by a panel of experts last week.

"Our outlook for the next 12 to 18 months for all segments is negative," said Robert Konefal, managing director of Moody's Investors Service in New York, adding that long-distance carriers face severe pressure. "In the past year, we have downgraded companies with large long-distance busi-

nesses — such as AT&T, WorldCom, Sprint and Qwest — by multiple notches."

The telecom implosion is blamed on an industry that overbuilt capacity while overestimating demand, said experts. Corporate scandals have also been debilitating.

"We find ourselves in the midst of some very difficult times in the telecom industry," said FCC Chairman Michael Powell. He said a major problem facing telecommunications companies and equipment makers is access to capital to fund network upgrades and new services.

Powell sees the private sector as the principle, but not the only, driver of a recovery. Government efforts to spur competition, such as the Telecommunications Act of

1996, which opened local phone service to competition, also protected new entrants into these markets from failure, shoddy business plans and debt. "The government's pro-competitor industrial policy cracked," Powell said earlier this month at a forum in New York.

Capital "follows it own rules" and not the rules of policymakers, he said. But he also faulted investors for pouring money into firms with weak fundamentals.

Regulatory Certainty
The FCC was told by the panel that companies need regulatory certainty. But there were also warnings that government actions to spur competition can sometimes run counter to market wishes.

"The market generally does not like competition introduced into a regulated industry because it many times threatens returns in the short term," said Laura

Warner, an analyst at Credit Suisse First Boston.

"Competition is still an imperative," said Powell, but he noted that "it's a continuing struggle" to determine what balance to achieve in a regulated market.

"The public good, the public interest in competition, really ought to trump anything else," argued Larry White, an economics professor at New York University.

The telecommunications industry was also faulted for its inability to deliver products that customers want at prices they can afford. Barry Nalebuff, a Yale University management professor, said the sector itself is to blame for many of its headaches.

"The problem with broadband is there simply aren't any good killer applications," said Nalebuff. He added that what's needed is more competition, which will bring down prices and improve application offerings. ◗


Behind The Fall

New wireless, data and broadband products drove the telecom boom. Then came the bust.

THE FALL
- Investment excesses led to overcapacity.

- The economy soured.

- Corporate scandals emerged.

- Capital spending fell.

THE FIX
- Companies must offer compelling applications for broadband at a lower cost.

- Companies need bankruptcy protection to wipe out debt. This would hurt investors but lower prices. Competitors may want the same advantage, however.

- Government regulators need to give companies regulatory certainty.
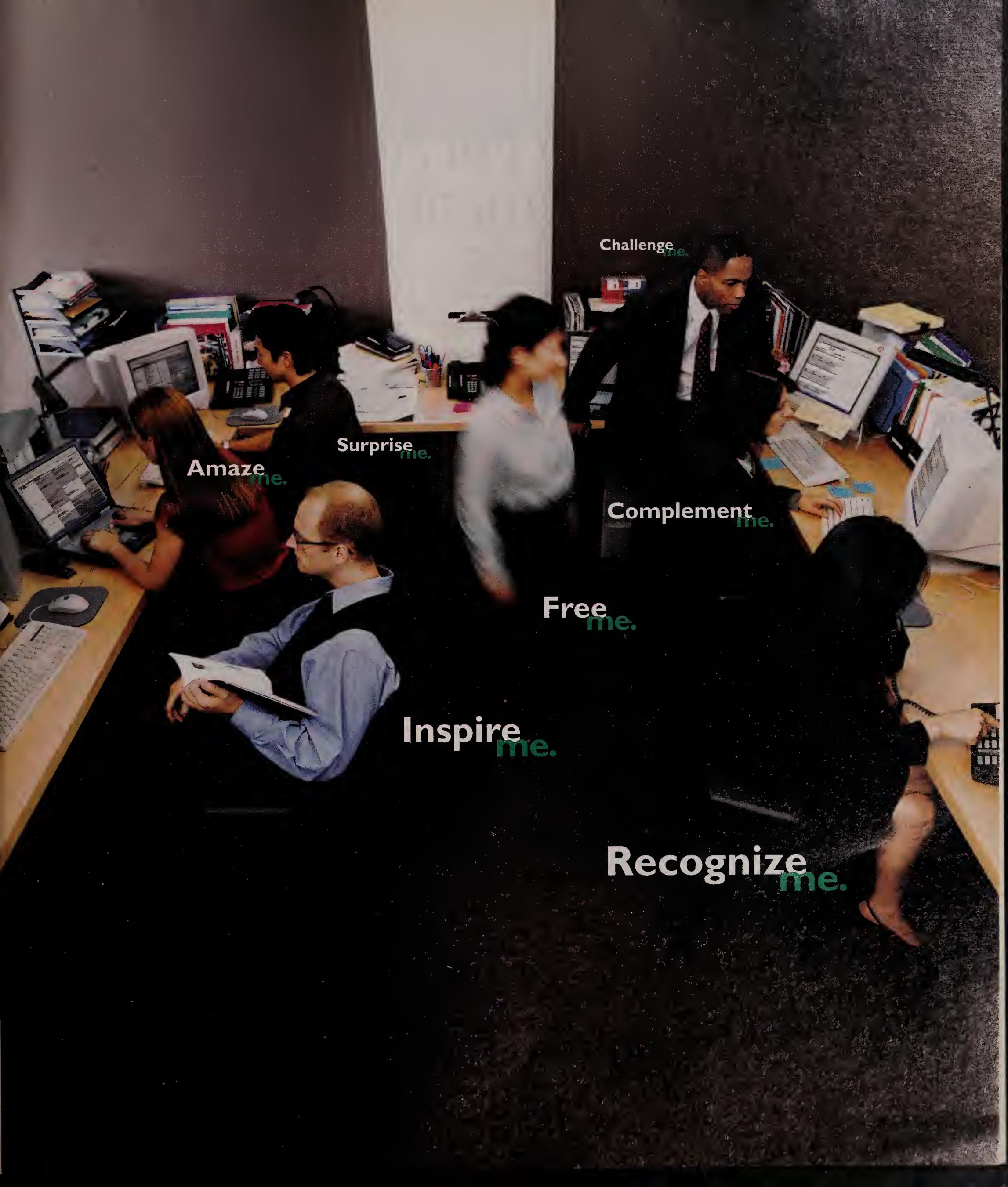
Vendors Race to Fill Access, Identity Management Gaps

Spurred by need to better manage multiple identities across multiple apps

BY JAIKUMAR VIJAYAN

SOFTWARE VENDORS are introducing a slew of products that aim to reduce the growing complexity of managing user identities and controlling access to applications scattered across internal and external systems.

IBM and VeriSign Inc. last week rolled out a hosted service for identity management, and RSA Security Inc. introduced a new version of its ClearTrust access management suite that features key usability and security enhancements. Novell Inc. and Waltham, Mass.-based Netegrity Inc. are slated to introduce updates of their access and identity management technologies this week.

The latest announcements add to an expanding list of identity management products and services from vendors such as Oblix Inc. in Cupertino, Calif., Courion Corp. in Framingham, Mass., and Aventail Corp. in Seattle.

Growing Need

Driving all this activity is the growing demand for products that help better manage the task of dealing with multiple versions of user identities across multiple applications, according to analysts.

"Companies are realizing they have a problem with this thing," said Laura Koetzle, an analyst at Forrester Research Inc. in Cambridge, Mass.

IDC in Framingham, Mass., predicts that sales of security management software, which

includes identity management offerings, will grow 30% annually, from $550 million in 2001 to $2 billion in 2006.

Identity management products offer capabilities as varied as centralized administration and life-cycle management of user identity data, password synchronization across multiple applications, single sign-on, secure authentication and policy-based access control.

Oblix, for instance, has helped Oslo-based Norsk

Hydro automate the task of setting up users, simplify the process of updating and maintaining user attribute information, and ease the delegation of access-control decisions to business units.

The energy giant is using Oblix's NetPoint technology to let third parties access corporate portals for tasks such as ordering natural gas. Oblix also helps Norsk control the manner in which its 40,000 employees access internal applications, based on a person's role or other attributes.

"As you open up your information assets to external companies, business partners and

customers, you can't base your security on firewalls alone," said Mike Kimbell, a directory architect at Norsk Hydro. "You have to protect the information and how it is accessed."

For Blue Cross and Blue Shield in Kansas City, Mo., the hassle of creating new user profiles each time an application was launched pushed the organization to install Bedford, Mass.-based RSA's ClearTrust technology. Software from RSA has allowed Blue Cross to maintain a single user store to automatically provision access to new applications, said Kurtis Keling, senior security analyst at Blue Cross.

Who's Who?

Identity management products offer capabilities including:

- **Password synchronization across multiple applications**
- **Single sign-on**
- **User authentication**
- **Authorization and access control**
- **Delegated administration**

"It has reduced the time it takes for us to bring on new applications," Keling said.

Going forward, expect to see such identity management technologies playing a crucial role in enabling Web services, said Larry Hawes, an analyst at Delphi Group in Boston. "Distributed access management is a big hole in the service-oriented architecture right now," Hawes said. ▶

New Systems Ease Support of Handhelds

Will reduce setup time, costs for IT

BY BOB BREWIN

Good Technology Inc. last week announced a system aimed at making it easier for IT departments to provide mobile device users with access to back-end information systems without the need to individually configure their handhelds. And AT&T Wireless Services Inc. and Microsoft Corp. jointly announced a similar hands-off approach to setting up remote users on corporate e-mail systems.

Good Technology in Sunnyvale, Calif., launched Goodinfo, a tool it says will help IT managers develop mobile access to back-end systems using XML. Danny Shader, CEO of Good Technology, explained that with Goodinfo, users simply download information from a server that is linked to enterprise back-end systems.

Rick Koski, chief operating officer at Critical IT Solutions, an IT professional services and consulting firm in Menlo Park, Calif., said the Goodinfo technology greatly reduces the cost IT departments face when deploying and supporting new mobile hardware.

"The high cost of IT results from the need of [the IT department] to touch everything," Koski said.

Koski said Goodinfo speeds mobile applications development, enabling his company to

create a library of applications users can tap into from the field. For example, the library includes a time sheet for Critical consultants connected to the firm's back-end accounting system.

Faster Setup Time

AT&T Wireless in Redmond, Wash., meanwhile, launched its WorkWare system, which aims to take the pain out of setting up Microsoft Exchange e-mail and Outlook client software on remote devices running Microsoft's Pocket PC operating system. WorkWare runs on the Microsoft Mobile Information Server and uses AirLoader software developed by AT&T Wireless to automat-

ically provision Pocket PCs with the software needed to access Exchange and Outlook.

Carlson Hospitality Worldwide, a division of Carlson Companies Inc. in Minneapolis, is beta-testing WorkWare. Michael Murphy, the company's director of IS support services, said WorkWare eliminates the hourlong process of individually setting up each Pocket PC used by hotel managers, salespeople and executives. That's key when users lose their handhelds, because it drastically reduces the time it takes to provide users with a new device and the requisite software, he said.

Weston Henderek, an analyst at ARS Inc. in La Jolla, Calif., said AT&T Wireless is playing catch-up with Research In Motion Ltd. in Waterloo, Ontario, which has offered similar access to Exchange e-mail for more than two years.

According to Henderek, Good Technology might be three years ahead of demand for a mobile system that can access back-end databases, because e-mail is the primary mobile enterprise application in use today. ▶

SYSTEM BASICS

Good Technology
- **Goodinfo is priced at $3,000** for a server site license, plus $50 per user. Airtime is $34.99 per user per month over Cingular Wireless' 9.6K bit/sec. packet data network.
- **Works on company's proprietary G100 pager and RIM pager.** Available next year on Pocket PC and Palm OS devices.

AT&T Wireless
- **Integration services** available from HP Services, priced at $50,000 for 60 days of work.
- **Airtime ranges from $19.99** for 3MB of data per month to $199.99 for 200MB of data per month over AT&T's 20K to 40K bit/sec. General Packet Radio Service network. Works only on Pocket PCs.

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NEWS

Baan Aims to 'Assuage Fears' at User Meeting

Parent firm's CEO pledges support for Baan's software

BY MARC L. SONGINI

BUSINESS applications vendor Baan Co. this week hopes to calm the continuing anxiety of customers about its future and sell them on the vision of a connected enterprise that can share data in real time.

At the fall conference of the Baan World Users (BWU) group, the company, which was bought by Invensys PLC two years ago, plans to focus on the use of its software to set up real-time application frameworks. That matches a strategy being touted by rivals such as Pleasanton, Calif.-based PeopleSoft Inc.

But Rick Haythornthwaite, CEO of London-based Invensys, also said his job at the conference in Los Angeles will be to "assuage fears" held by users. "Baan has the most extraordinary capacity for generating groundless rumors and confusion," he said.

User Concerns

Kathleen Van Dyken, a director of the Toronto-based BWU, said she has lots of questions about Baan's future. "I think the users want to know the stability of Baan here in the Americas," said Van Dyken, president of KVD Technologies Inc., an IT consultancy in Alisa Viejo, Calif. "There are still rumors of Baan being sold again. The users don't see their community growing."

Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif., was even tougher on Baan. "In the two years that Invensys has owned Baan, the company has gone from troubled to irrelevant," he said. "The only asset left is the customer base,

and for the right buyer, that could have some value."

Haythornthwaite said Invensys officials are standing behind the enterprise resource planning (ERP) software developed by Barneveld, Netherlands-based Baan. "We are committed to the core development of the ERP product and to extending the solutions set and services offerings to our customers where it makes sense for them," he said.

Without offering specifics, Haythornthwaite said he plans to start discussing the idea of

creating a joint equity partnering program to help expand Baan's product lineup. But, he added, Invensys would continue to "own the customer relationship and own the technology road map."

John DiCenso, a BWU director who's director of information systems at Applied Extrusion Technologies Inc. in New Castle, Del., said he's particularly interested in seeing a detailed product road map at this week's conference. Applied Extrusion, a maker of specialized plastic films used

in product labels and packaging, runs most of the modules in the Baan IV ERP suite.

When Invensys bought Baan, the promise was that it would be able to sell systems that tied together data all the way from the sensors on production floors to corporate back offices, DiCenso said. Now Baan needs to show users that the idea isn't "just pie in the sky," he added.

Mike Webb, senior vice president of IT at San Jose-based contract manufacturer Flextronics Inc., was more upbeat. Webb attended a strategy session with Baan executives in Las Vegas last week and said he was encouraged by their product development plans. ▶

Thomas Hoffman contributed to this report.

Commerce One Users Fret About New Cutback Plans

BY MATT HAMBLEN AND MARC L. SONGINI

Commerce One Inc.'s plan to reduce its head count by another 36% is weighing on the minds of some customers as the software vendor prepares for its annual user group meeting next week.

Several Commerce One users last week said the 400-worker layoff announced earlier this month is a grim reflection of the disastrous market for IT in general and e-commerce software in particular.

CEO Mark Hoffman said in a statement that the layoffs "will help us preserve our cash position and focus on our dedicated customers" as well as on Commerce One 6.0, a suite of online procurement and sourcing applications that's due early next year.

Crystal Smith, president of the Chicago-based International Commerce One Network (ICON) user group, expressed guarded optimism about the company's long-term viability. ICON's annual conference is due to start Oct. 21 in Burlingame, Calif.

"Of all the different soft-

ware companies that sell e-procurement systems, I really have a lot of faith in Commerce One," said Smith, who is the e-procurement manager at Idaho Power Co. in Boise. "We're hoping they pull through these ugly times."

Pleasanton, Calif.-based Commerce One said the new job cuts will reduce its workforce to 700 people by Jan. 1.

Commerce One's Workforce

Dec. 2000	3,700
Sept. 2001	2,800
Sept. 2002	1,100
Dec. 2002	700*

* Projected total

That's 3,000 fewer workers than the company employed at its peak (see chart).

"We're hoping they can pull this off with their continual downsizing, because we truly believe in their product still," said a procurement manager who asked not to be named. But the user also expressed concern that Commerce One won't rebound and hopes another vendor will buy the company.

Commerce One's revenue fell 78% year to year in the first half of 2002, and David Hope-Ross, an analyst at Gartner Inc. in Stamford, Conn., predicted that the drop-off will hurt the vendor's software development efforts. Hope-Ross doesn't expect Commerce One's technology to disappear, but he said users should be making contingency plans.

Ian Hollingworth, chief technology officer at Quadrem U.S. Inc. in Dallas, said his company has started down that road. Quadrem, which runs a Web-based transaction platform for companies in the mining industry, has gradually supplanted some Commerce One software with products from SAP AG, Fairfax, Va.-based webMethods Inc. and Westminster, Colo.-based Requisite Technology Inc. ▶

Microsoft Gives Peek At Outlook 11 Upgrade

IT managers say that plans for new e-mail client address their key needs

BY TODD R. WEISS
ANAHEIM, CALIF.

MICROSOFT CORP. last week gave the first public preview of its upcoming Outlook 11 e-mail client software, and several IT managers in the audience said they liked what they saw.

The features that Microsoft showed off would answer some of the most pressing needs of Outlook users, according to attendees at Microsoft's MEC 2002 conference here. For example, Outlook 11 is to include a redesigned user interface and new capabilities for threading, sorting and caching messages when it ships next year.

Jason Loster, a corporate IS administrator at Manitoba Public Insurance in Winnipeg, said the ability to cache messages locally will let the auto insurer's 1,400 Outlook users continue to access their e-mail after a server crashes.

Loster also said he likes the Outlook 11 user interface, which moves the incoming message window from the bottom of the screen to a column in the center that provides a screen-length view of messages. "Our users don't like to scroll down to read messages," he said. "They want to know why they can't see more."

Lori Woods, a computer specialist and e-mail administrator at the U.S. Department of Agriculture (USDA), said new capabilities for sorting messages by size should make it easier for the agency's 7,000 Outlook users to keep their inboxes from filling up.

USDA users are limited to 20MB of e-mail, Woods said, adding that deleting large messages will be a more intuitive process in Outlook 11. The

size-sorting function and other, more user-friendly features promised by Microsoft for Outlook 11 should also reduce workloads for the USDA's help desk staffers, Woods said.

Outlook 11 is scheduled to ship in mid-2003 as part of Microsoft's Office 11 suite and in conjunction with an upgrade of the company's Exchange e-mail server code-named Titanium [QuickLink 33411].

Simplify, Simplify

Jensen Harris, lead program manager for the Titanium upgrade, said many of the changes coming in Outlook 11 were designed to simplify the software for users. For example, Microsoft is trying to give the new Outlook user interface a more efficient layout with added space for displaying messages, Harris said.

Ric Crowe, an Exchange messaging administrator at The Boeing Co., said the off-line caching feature and a new tool for flagging important incoming messages should be big pluses for end users at the Chicago-based aircraft maker. The additions that Microsoft is building into Outlook 11 should result in "a far better product" than earlier versions of the software, Crowe said.

Microsoft also gave an early glimpse of a module called XSO, being developed separately from Outlook 11. Company officials said the module will let Web pages work seamlessly with Outlook so information can be automatically entered from a participating Web site directly into a user's Outlook calendar. ▶

Longhorn

they're not going to see something until the middle of 2004 at the earliest.

During a keynote speech at last week's Gartner Symposium/ITxpo here, Microsoft CEO Steve Ballmer said only that a new Windows release is coming during the next three years. At other times, Microsoft executives have made vague statements that Longhorn is years away.

Corporate IT professionals hoping to do some long-term planning for the next major Windows release got no definitive answers at ITxpo. Analysts gave the Longhorn client operating system a 50% probability of shipping in the first half of 2005 (40% in the second half of 2004), and they projected that the Longhorn server operating system won't hit the market until 2006.

Those predictions conflict with Microsoft's stated intention to ship the client and server operating systems at the same time. But Microsoft wasn't able to make good on that pledge for its last operating system, either.

The Windows XP client operating system shipped roughly a year ago. The server operating system based on the same kernel, Windows .Net Server, was supposed to ship at the same time, but that has slipped and is now expected to ship in the first quarter of next year.

Slipping ship dates don't tend to bother many corporate users, who often bemoan the difficulties of keeping up with the latest Windows releases, given the potential cost and effort required to do companywide upgrades.

But this time, some customers who signed up for Microsoft's controversial new Software Assurance maintenance program, which charges them an annual fee for the right to the latest software, may turn sour if they don't see a major upgrade during their three-year contract terms.

"I think we're very well aware that if Longhorn is more than three years after XP releases that we have an issue there with our customers," said Weed. Asked if Microsoft would do something if Longhorn's ship date slips, Weed said, "I think we will."

He wouldn't speculate what form any action might take.

For some customers, it won't be a burning issue, even if they signed up for Software Assurance.

John Wisniewski, global infrastructure director at Wm. Wrigley Jr. Co. in Chicago, said his company signed a Software Assurance contract on July 31, the deadline date. But he said that because Wrigley has a "dual strategy," with two operating systems running companywide at any given time, he won't be upset, since half the company still needs Windows XP.

"It doesn't matter to us what the next one [operating system] is," Wisniewski said. A bigger determining factor is the global availability of hardware, he said.

But with regard to the server operating system, some users are anxious to see a new Windows release for its promised improvements in workload management and partition awareness.

Rick Stuller, chief information manager at Hawaiian Electric Co. in Honolulu, said his firm has about 150 servers running Windows 2000, adding that he hopes to do some server consolidation.
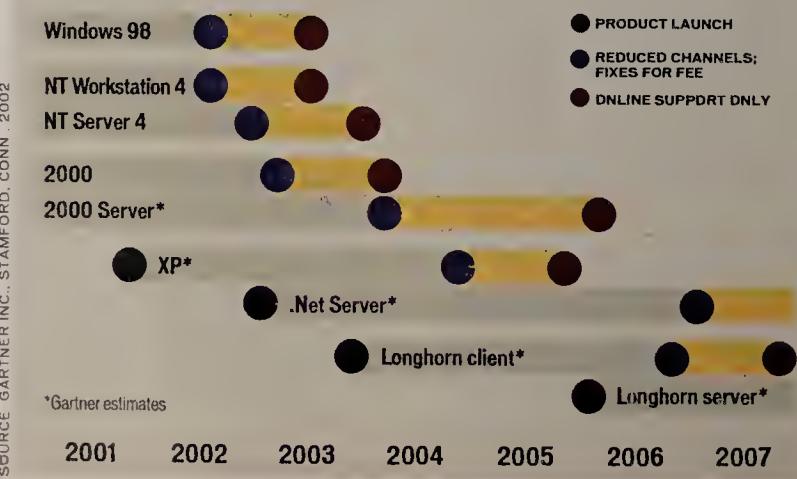
Stuller said he's not sure if the Windows System Resource Manager, which is due to ship with Enterprise and Datacenter editions of Windows .Net Server, will be able to help or whether third-party products from vendors such as VMware Inc. might make more sense from a total cost of ownership standpoint. But he does know that the potential wait to 2006 for workload management improvements in Longhorn would be "too long," he said. ▶

MORE ONLINE

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Windows 98
NT Workstation 4
NT Server 4
2000
2000 Server*
XP*
.Net Server*
Longhorn client*
Longhorn server*

*Gartner estimates

2001   2002   2003   2004   2005   2006   2007

SOURCE: GARTNER INC. STAMFORD, CONN. 2002

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PATRICIA KEEFE

Awash in Numbers

WE'RE ABOUT TO BE awash in IT spending and budgeting survey results as various analysts — among them Forrester Research, Merrill Lynch and Morgan Stanley — ready their latest quarterly updates on what your peers say they are doing. Kicking off the numberfest last week was Gartner's annual Symposium/ITxpo, which offers a decidedly mixed take on the fourth quarter and the year ahead.

For example, Gartner projects that IT spending for the year will grow 3.4% over 2001, but it also downgraded its growth expectations for the second half of 2002. While predicting a 7% growth rate in IT spending for 2003, Gartner is quick to caution that a recovery won't start before the second quarter — at the earliest.

Conversations with Gartner, Forrester and other analysts make it clear that anyone looking for a quick end to the misery of the past two years will be disappointed. After misreading the market last year, analysts will be far more cautious predicting the outcome of 2003. But there's also a glimmer of hope along with a pent-up desire for folks to get out and make something happen.

Right now, it's still a mixed-up, muddled-up, shook-up world. The stock market is up, then it's down, pretty much like the roller-coaster ride of your nightmares. The jobless rate has allegedly fallen, even though EMC, HP, Fidelity and others have announced big layoffs and the IT job market remains soft. Fears that a drop in consumer confidence and the threat of war will undermine a recovery are matched by hopes that IT will have to start buying again as Y2k-related upgrades, especially in the desktop area, reach the end of their life cycles.

PATRICIA KEEFE is editorial director at Computerworld. You can contact her at patricia_keefe@computerworld.com.

In the meantime, IT departments are faced with delivering not just more of the same — ever more value with fewer resources and flat or declining budgets — but they must now work to position themselves and their companies for the better market that lies ahead. "It's time to take things into our own hands and move forward, regardless of the environment," urged Gartner CEO Michael Fleisher last week.

So, what do you grab first? For starters, fully embrace the business value of IT. That theme was repeated over and over last week, summed up most concisely by Cisco CEO John Chambers: "I think the role of the IT organization . . . [is] now more of a business role with IT expertise than an operational role minimizing costs." So get serious about aligning IT goals with the business goals. Gartner sees the business side eventually driving IT strategy. [When Gartner says "eventually," it's talking about today, says Frank Hayes; page 54.]

What else can you do to move things along?

■ Continue to target strategic projects with a quick, demonstrable ROI, but go the next step and prioritize the projects on your plate so you can devote limited resources to achieving the top three.

■ Focus on upgrading the skill set of your remaining staff — particularly in the areas of negotiation and project management.

■ Act now to renegotiate contracts and minimize license commitments if you haven't done so already. I've said this before: To be successful, IT needs to dig down and audit its use of software. Are you buying licenses and extra capacity you don't need right now? In the go-go days of 25% to 40% year-over-year industry growth, this made sense. It doesn't in today's environment of smaller staffs and tightly focused IT agendas.

■ Examine critical business processes and either reduce the time it takes to complete them or outsource them to cut costs. ◗

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FEDS SECURITY ORGS. SOFTWARE MAKERS

Collaboration

PIMM FOX

Avoid the Decline of IT Innovation

SHIFTING IT functions to third parties comes with many obvious advantages: Lower development costs, more flexible timetables for quality assurance and opportunities to focus resources on important projects.

But these benefits mask a perilous situation: the contraction of IT innovation. U.S. industrial spending on R&D this year is expected to decline for the first time since 1960, according to government reports. In addition, the rate of increase for new patent applications is down by nearly 90%. While many factors contribute to these conditions, the debate over how to maintain IT innovation has never been more relevant.

The idealized outsourcing scenario frees budgets and internal workers for mission-critical or core-competency projects. The truth is more prosaic.
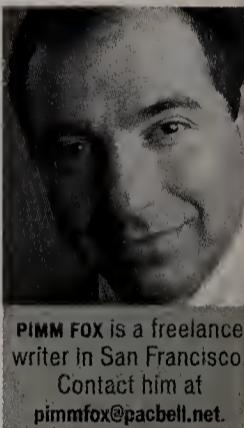
Cost savings are being sucked to bolster slim bottom lines. The net effect is a hollowing out of

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IT talent, leaving a skeleton staff to pay lip service to the notion that certain IT functions are indeed essential to the enterprise.

There are ways to sustain innovation and continue to outsource. But they're not free.

"The challenge is to set up relationships — whether they are with internal staff or offshore development teams — that foster innovation," says Carl Frappaolo, head of knowledge management and co-founder of the Delphi Group in Boston.

He says that instead of obsessing about cost savings, companies should be focusing on innovation before their competitors get too far ahead.

One way to do this is to jettison the attitude that IT is merely a service organization and instead treat it as a P&L unit. This directs IT to add value to the business while enabling it to become an active participant with business

teams to develop new products and services. In this way IT staffs aren't merely expected to execute orders; rather, their jobs are defined to deliver creative, sophisticated IT solutions.

For example, the economic slump at a technology manufacturer provoked a boardroom quest to understand why the firm was losing market share. While IT didn't pretend it had the answer, it did show that existing corporate information, appropriately integrated, could yield an answer.

What's interesting here is that the IT group was a combination of in-house and outsourced operations. The difference from most situations is that this IT group invested in new jobs to manage and monitor the outsourcing relationship.

Innovative thinking doesn't happen in a vacuum. If all of IT — outsourced and in-house — isn't clued into the purpose of the enterprise, the business loses. ◗

DAVID MATTHEWS

IT Choices For the Environment

E-COMMERCE, e-government, e-mail. E-terms have become ubiquitous in our electronic era. Now, here's a new one: e-waste. Electronic waste and the harm it does our environment require a close look.

Corporate e-waste has grown exponentially over the past three decades. The materials involved have harmful effects on health and the environment. For example, CRTs contain high levels of lead and other heavy metals; lead has been shown to cause permanent damage to human blood, neurological systems and the kidneys. Circuit boards, found in nearly every type of electronic device, contain lead solder, mercury, cadmium and plastic toxins.

The toxins in high-tech equipment are only a piece of the alarming whole-life picture. The production of most, if not all, components uses a wide array of hazardous chemicals. And, when electronics reach the end of their life cycles and are crushed or burned in landfills, toxins can leach into groundwater or be released into the atmosphere.

There are alternatives to current practices of manufacturing and disposal of these products. As IT professionals, any changes in procurement practices we make will create a positive difference. We can begin with some specific questions for vendors in our RFPs. Ask them the following questions:

■ Which of your products meet general environmental standards and labeling guidelines set by bodies such as the TCO (the Swedish Confederation of Professional Employees) and our own EPA?

■ Do your products meet U.S. EPA EnergyStar labeling requirements?

■ Do you provide products and packaging that are manufactured without mercury, cadmium, lead, halogenated flame retardants, chlorinated solvents (in manufacturing) or chlorine-based plastics?

DAVID MATTHEWS is the technology manager for the Seattle city council. He can be reached at david.matthews@seattle.gov.

If the products or their packaging contain these toxic materials, have the vendors spell them out in detail. Get them to identify the recyclable content in what they ship to you and what steps are necessary to separate those materials from the product in order to recycle them.

Finally, get your suppliers to explain how they handle equipment at the end of its useful life. That is, do they do de-manufacturing, rebuilding and recycling of component parts? Tell them that donating the equipment to a charitable organization isn't considered end-of-life management.

Suggest to your vendors that they strive toward these goals. Vendors are beginning to actively recycle and reuse equipment and packaging; your input will prompt them to go further.

This process can work, and it is working for the Seattle city government. As a result of pressure from us and other customers, the vendor we chose for our laptops instituted a recycling program. It has contracted with a company to disassemble and recycle or properly dispose of all components and materials in its obsolete equipment. Further, a buy-back program credits customers for equipment at the end of its useful life. You should demand these kinds of programs from your vendors.

IT professionals must take stewardship of the growing and distressing crisis of e-waste. To do so, we must implement currently available methods and introduce new practices that will turn this toxic tide. ◗

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READERS' LETTERS

Elusive ROI

MY SENSE IS THAT unease with ROI techniques is in part related to the fact that the scope of the investment and results computation is sometimes too limited, leading to a misunderstanding of the true impact of a particular project ["Savvy CIOs Go Beyond ROI Metrics in IT Budget Process," QuickLink 33015]. Many projects stand on the shoulders of past work. The planned and actual cost of a project might be quantified fairly well, but how to measure the benefits? The project may facilitate an improved business process, but it wouldn't be viable if the ERP infrastructure hadn't already been installed. So should the ROI of the ERP project be restated? Another problem is that benefits might be greatest in the out years of an IT investment, according to John Chambers of Cisco. Also, benefits in the out years in a IRR/NPV model, with a steep hurdle rate (say 15% to 20%), are discounted to a fraction of their nominal value. Projects assessed using NPV/IRR need to show near-term benefits, so using those metrics may screen out investments that have solid long-term impact and that serve as infrastructure for other projects. I don't know if there's an easy answer. It may be that we need to expand the scope of costs and returns in assessing investments and investigate the impacts more broadly. I have observed that good business people tend to use IRR/NPV and the like as starting points for their assessments of the merits of an investment, and seek to understand the other costs and benefits that may not have been included in the numbers. It's a difficult technique to teach and quantify.
Maynard C. Wiff
Vice president of IT,
Dover Corp., New York

Better Applications

SOME PLATFORMS already are the best of both worlds ["Developers Re-examine Rich-Client Apps," QuickLink 33064]: They give the ability for easy delivery, optimizing use of the Internet for data transmission, and they remove the redundancies of transmitting the application forms each time. I always thought, Why do I need to download all the images each time I access my banker's Web page? Why can't I do it once and then next time use the Internet for just the data? I think wisdom is dawning and people are figuring out better architectures for Web applications.
Sreedhar Allani
Project coordinator, Unique
Computing Solutions Inc.,
Hyderabad, India

Hard to Justify

THE SEVEN-YEAR, $1.5 billion deal between HP and CIBC is interesting [QuickLink 32947]. Breaking that down to $214 million yearly, it's still outrageously high. If CIBC's automation spending is more than $200 million, then outsourcing is a wise choice. On the other hand, if CIBC's automation spending is less than $100 million, then the bank didn't explore all other practical options. The learning curve is going to be steep for both the bank and HP. The big challenge will come when a hardware replacement proposal arrives on the CIO's desk. Why go for seven years? Three sounds safer.
Rocky Termanini
Managing director, Inter-
national Consulting Group,
Stamford, Conn.

IT Labor Realities

IT SEEMS TO THIS out-of-work IT worker that the esteemed members of the panel reported on in the story "Panelists: Jobless IT Workers Should Reinvent Themselves" [QuickLink 33214] are totally ignorant of the new realities of the IT employment world. Back when jobs were plentiful and skilled workers were few, reinventing yourself was relatively simple. Today, if you don't have 100% relevant experience, potential employers won't even read your résumé. I would challenge each of these gentlemen to try finding a job in this environment, especially one that involves "moving up the food chain." Things have changed drastically, and not for the better.
Doug Hart
Corona, Calif.

PANELIST Srinivas Raghavan, who said there are "huge opportunities" for U.S. IT workers to bundle their expertise in communications and integration skills, just doesn't get it. Management at U.S. companies doesn't value communications skills, which, unlike hourly pay for programmers, aren't immediately bottom-line measurable.
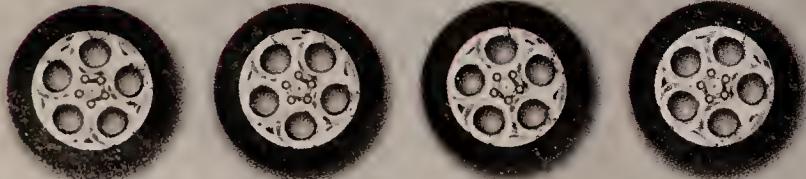**Alan Falk**
Cupertino, Calif.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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Bridging DATA ISLANDS

Integrating data from disparate sources provides companies with powerful management tools, but the process can be difficult, costly and error-prone. By Gary H. Anthes

AFTER JUST TWO MONTHS, a new software tool enabled Aventis Pharmaceuticals Inc. to discover a promising candidate for a new drug to treat asthma, arthritis or even perhaps cancer; it's a chemical compound that might well have been overlooked using traditional IT tools.

Aventis is using DiscoveryLink, a feature of IBM's DB2 database management system that can propel a single SQL query out to multiple, heterogeneous data sources and bring information back to the user in one coherent view.

"Using this integrated framework, scientists were able to pull data from many different sources around the world, visualize it in a new way that they could never do before," says Peter Loupos, vice president for drug innovation and approval information systems at the Bridgewater, N.J.-based company.

IBM calls the Aventis approach to information integration "database federation." To get at federated data, DB2 uses IBM "wrapper" software called Data-Joiner and Relational Connect. There's one wrapper for each type of data source — whether it's from Oracle Corp. or Sybase Inc. systems, Microsoft Corp. SQL Server or flat files — with each one mapping the source data model to the DB2 data model. A single Aventis query may be

sent against heterogeneous relational databases, unstructured documents and in-house expertise culled from e-mail and other sources.

Sending a SQL query against remote, heterogeneous databases is just one of several ways to integrate data. Others include the following:

■ Custom, hard-wired interfaces that pass information from one application to another. These can be made to work exactly as users demand, but they can be costly to set up and maintain.

■ Replication, in which a commercial product regularly or continuously copies databases or parts of databases from one place to another. Replication is simple but limited in its ability to do anything to data beyond copying it.

■ Extract, Transform and Load (ETL), a process often used to create data warehouses and data marts. ETL software moves data from one place to another, applying rules or table lookups to combine or transform data in some way. ETL is powerful but can be very complex.

■ Web services. Enabled by Internet protocols including the XML standard for exchanging data between disparate systems, Web services allow SQL-based relational data to be accessed as XML, or native XML to be accessed through SQL. Web services are ideal when applications are loosely coupled and difficult to integrate in other ways.

Regardless of the approach taken, data integration can be difficult, expensive and error-prone. In particular, great care must be taken to build interfaces between applications and databases that ensure accuracy and timeliness of information and that answer the needs of disparate communities of end users. Below, we look at how two organizations tackled their data integration problems, and you can read two more case studies online [QuickLinks 33285 and 33449].

CASE 1: Standardization Is Key at Affina

While it supports all of the various methods of integrating data, Oracle favors loading data into centralized databases and data warehouses. And that's the approach taken by Oracle customer Affina, a contact-center service provider in Peoria, Ill.

Affina, which has about 3TB of data in Oracle databases, runs call centers for about 100 clients. That requires taking data from telephone calls, e-mail, Web chat and various back-end processing systems and feeding it into an "operational data store," a data warehouse and several data marts, says Tom

DAVID HOLLENBACH

TECHNOLOGY

Asp, vice president for IT. Affina also pushes information — such as call analysis — back out to customers. For efficiency and security, data coming in and going out is staged in customer-specific tables that can be accessed by customers.

Affina uses Oracle Warehouse Builder, Oracle's SQL Loader utility, custom PL/SQL procedures and .Net assemblies in ETL processes to pull in and reformat customer data from Lotus Notes e-mail databases, call records from telephone switches, flat files from interactive voice response units and client data from a system that emulates mainframe CICS. "Any way we could get data, we get it," Asp says.

Affina also uses Oracle8i replication utilities to move data in real time from a big call center in El Paso, Texas, to its data warehouse in Peoria. The Peoria copy is used for reporting, but the production database remains in El Paso for performance reasons.

Automation and standardization are the keys to making such a complex operation run smoothly, Asp says. File transfers, schedulers and loaders are automated, and strict standards are adhered to so new processes can be added easily and without fear of bugs. He says Affina is increasingly moving to the exchange of information in XML format because "it provides a common, flexible file format so that ETL procedures can be created more efficiently."

CASE 2: Database Dilemma at Terracon

Terracon Inc., an engineering consulting firm in Lenexa, Kan., uses an Oracle enterprise resource planning (ERP) system and an Oracle data warehouse. A two- to three-hour weekly process uses scripts that Terracon wrote in PL/SQL to move data from the operational ERP data to the warehouse, where it is used for reporting. Not all information — customer and employee names, for example — is replicated to the warehouse. Terracon was unable to

use Oracle's replication product, Streams, because the two repositories used different versions of Oracle, according to CIO Frank Milano.

Milano says he'd like to convert the data warehouse to Microsoft's SQL Server database. He says that with his existing Microsoft enterprise agreement he could do that for an additional $2,000 to $3,000 and save $30,000 to $50,000 in Oracle license fees. The ERP system would remain Oracle, however, because it's the best fit for Terracon's project accounting and financial management needs, he says.

And Milano says total cost of ownership with SQL Server would be lower than with Oracle. "Trying to maintain an Oracle database is brutal," he says. "It's complex, not for the faint of heart." But, he concedes, Oracle is better suited for large, complex, dynamic database applications.

But Milano says he worries that interfacing the Oracle and SQL Server databases may be tricky. In addition to the weekly transfer of production data from the ERP system to the warehouse, users must be able to initiate queries against the warehouse and have them go to the ERP database to pick up customer and employee names, and queries against the ERP system must be able to go to the warehouse for information that has already been calculated and summarized. "That's a great concern for us," he says. "I don't have a solution for it."

But Microsoft claims it does. According to Tom Rizzo, group product manager for SQL Server, Terracon could move data from the Oracle ERP system to the SQL Server data warehouse — doing any needed editing or massaging en route — using the Data Transformation Services tools that ship with SQL Server. And to access both databases in a single query, Terracon could use the Distributed Query engine in SQL Server, Rizzo says. ▶

Data Integration Products

COMPANY: IBM

PRODUCT OR TECHNOLOGY:
■ **DB2 Universal Database:** Relational database management system (RDBMS), includes Data Warehouse Center for ETL.
■ **DB2 DataJoiner:** Read/write access to non-IBM relational databases.
■ **DB2 Relational Connect:** Read access to distributed, heterogeneous ("federated") databases, including non-relational stores; write access available soon.
■ **IBM DiscoveryLink:** Integration of distributed, heterogeneous life sciences data.
■ **DB2 DataPropagator:** Database replication, included in DB2 UDB.
CLAIMED STRENGTHS: Diversity of sources supported; scalability; open and extensible architecture; "cost-based" query optimization for DB2 and heterogeneous databases.

COMPANY: Microsoft Corp.

PRODUCT OR TECHNOLOGY:
■ **SQL Server:** RDBMS
■ **SharePoint Portal Server:** Enterprise searching of multiple, heterogeneous data stores. Brings back metadata and pointers to the data.
■ **Distributed Query:** Allows access by SQL Server to any non-SQL Server data that exposes an OLE DB interface; included with SQL Server.
■ **Data Transformation Services:** A tool kit for importing, exporting and transforming heterogeneous data from OLE DB-compliant data sources; included with SQL Server.
CLAIMED STRENGTHS: Queries easily extensible to more data types; many integration functions available with SQL Server out-of-the-box.

COMPANY: Oracle Corp.

PRODUCT OR TECHNOLOGY:
■ **Oracle9i Database:** RDBMS
■ **Oracle Collaboration Suite:** Ultra Search feature gathers and indexes documents (text) in Web sites, databases, files, mailing lists, portals and user-defined sources including applications.
■ **Oracle Streams:** Database replication and message queuing for synchronous and asynchronous data transfer.
■ **Oracle9i Warehouse Builder:** ETL tools that extract, transform and load data from disparate sources to Oracle data warehouses.
CLAIMED STRENGTHS: The centralized storage approach, which offers lower cost and complexity than decentralized scenarios; scalability; messaging gateways to many database types.

COMPANY: Sybase Inc.

PRODUCT OR TECHNOLOGY:
■ **Sybase Adaptive Server Enterprise:** RDBMS
■ **EnterpriseConnect Data Access:** Connects LAN-based clients with enterprise data sources including Sybase, DB2 UDB, Oracle, Informix and SQL Server and DRDA- and Open Database Connectivity-compliant sources.
■ **Replication Server:** Bidirectional database replication.
CLAIMED STRENGTHS: "Functional compensation" makes Sybase features, such as row-level locking, accessible by client applications retrieving data from databases that don't support those functions; special strength in mainframe environments.

IBM's Integration Approach

In IBM's "federated database" approach to data integration, a single DB2 query can go against heterogeneous remote relational databases, Web sites, unstructured documents and flat files. DB2 uses IBM software called DataJoiner and Relational Connect "wrappers." There's one wrapper for each data type, and the wrappers map the source data models to the DB2 data model.
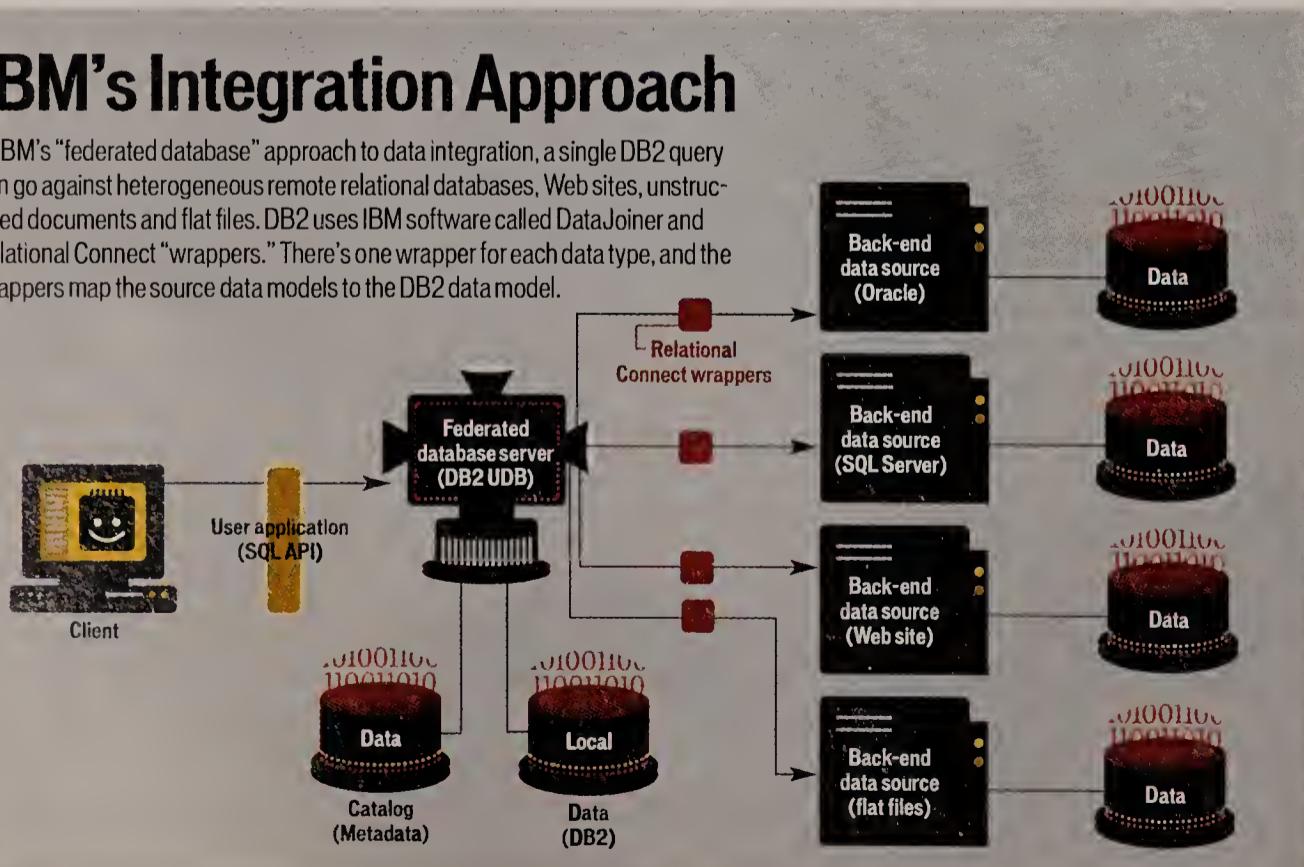
The

"**DISASTER HITS NETBACKUP™ RECOVERS**"

storage software company.

Route control devices can help speed data through the Internet and lower operating costs. But the upfront investment can be high. **By Robert L. Scheier**

BANDWIDTH COSTS are plummeting, telecom providers are closing their doors right and left, the dot-com bubble has burst, and the last thing your boss wants to do is spend money. So why would you even think about buying something called a route control server, with a price tag of $50,000 or more?

Because some IT organizations that have tested them say they can help you buy fewer leased lines and avoid hefty surcharges for short spikes in usage. They can also deliver better, more predictable network performance.

But you'll pay anywhere from $20,000 to $250,000 for route control appliances, or at least $1,200 per month for a route control service. Pricing depends on the amount of data being monitored, the size and complexity of the network, and whether the route control server is monitoring all Web traffic or just virtual private network (VPN) traffic on a corporate intranet.

For now, the technology makes sense only for the 10,000 or so enterprises that multihome, or use more than one Internet service provider, says Peter Christy, co-founder of Nets Edge Research Group in Los Altos, Calif. That could change, though, as prices fall and companies rely more and more on Web-based applications.

"You can pay a network engineer to sit there and tweak your routing updates by hand every day," says a technical analyst at a Midwest financial services firm, "but that's not a very good use of a $100,000-a-year-plus individual." The technical analyst expects to see a return on his $120,000 to $130,000 route control appliance investment within a year by cutting bandwidth costs as he moves a 4,000-node VPN from private networks to the Web.

Better Than BGP

Route control devices load-balance across multiple network connections by gathering and analyzing information about Web traffic and then sending new suggested data paths to the corporate router (see diagram). That new route could be the fastest, or the least expensive, since the appliances also take into account the type of billing arrangements with each Internet service provider.

"With our technology, you can buy any two random [network] providers and get better performance than picking the two more expensive providers and letting BGP [the Border Gateway Protocol] make the decision," says Andy Gottlieb, vice president of marketing and corporate strategy at San Mateo, Calif.-based RouteScience Technologies Inc., which makes route control hardware.

BGP, which the Web uses to handle routing, chooses the route through the Internet that requires the fewest hops

How to Choose the Right Route Control Option

If you need this capability...	...Look for this feature
Private-line-type reliability for Internet-based VPNs.	Ability to monitor and analyze non-Web IP traffic.
Proof that the network isn't to blame for slowdowns on Web-based applications.	Powerful reporting tools that show actual delivery time for Web pages
Peak performance regardless of cost.	Proactive analysis of multiple routes through the Web, and rerouting of traffic to prevent slowdowns.
Good enough performance at a reasonable cost.	Exception-based tools that reroute traffic only after seeing a slowdown.
Ability to accommodate strict firewall policies.	Passive monitoring techniques that analyze existing Web traffic rather than adding TCP probes to the traffic flow.
Ability to handle complicated billing structures with multiple ISPs.	Complex optimization algorithms to take into account billing rules, cost and performance.
Tools you can own and control.	Server- or appliance-based route control devices.
An outsourced capability you can pay for as you need it, and discard if you don't.	A route-control service that places a device at your site but maintains and controls it.

The Route Less Trave

between networks. But BGP has no way of rerouting packets if the hops it has chosen are already overloaded or the connections to them have been cut. BGP does allow for other considerations, such as speed or cost, but they are too complicated for all but the most experienced network engineers.
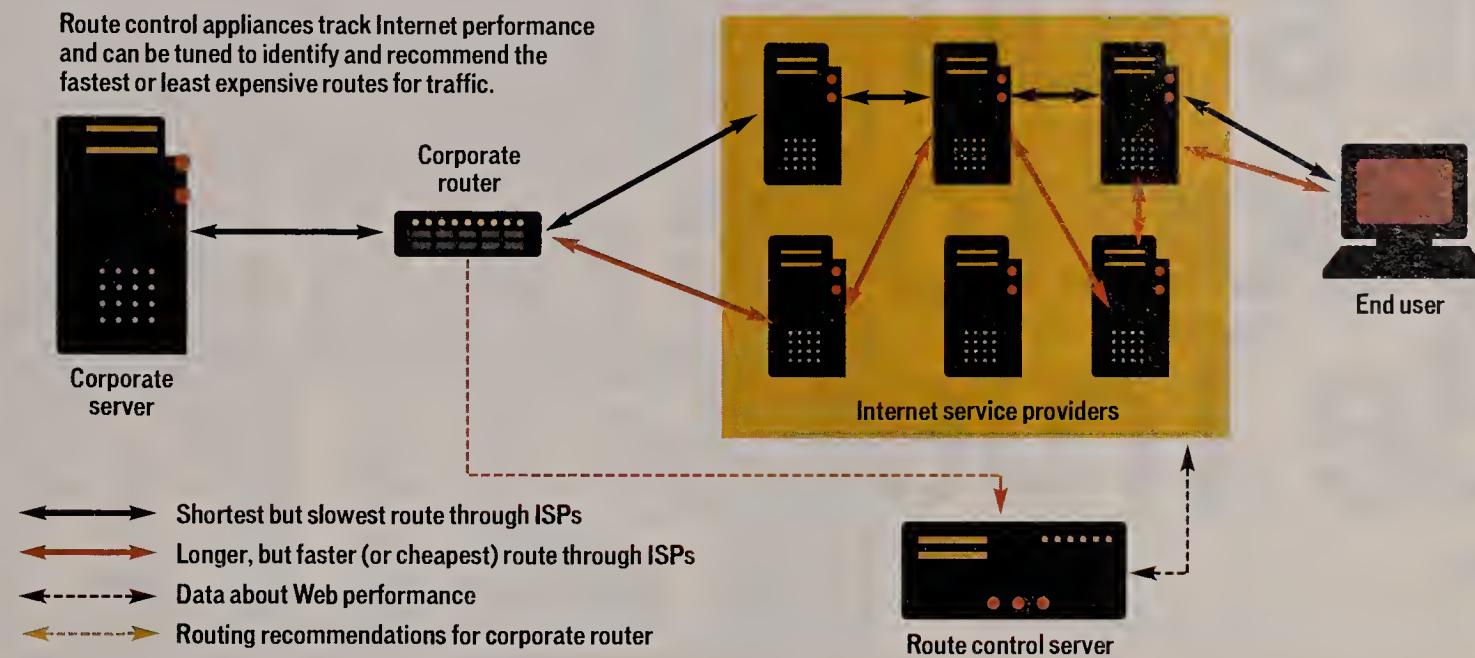
The result: "BGP routing typically selects the wrong route at least half the time," says Doug Ruth, CEO of Origix Corp., a Minneapolis-based network and data services provider that uses the GlobalRoute routing service from Sockeye Networks Inc. in Waltham, Mass. Not only is GlobalRoute faster than BGP, but it also finds a way around problems sooner, Rush claims. A few months ago, he says, Global-Route instantly rerouted his traffic around a slowdown in the UUnet network, a process that took BGP about two hours.

Going for Predictability

While performance is important, in today's economy it's often more important to provide "good-enough" performance that's predictable. Rather than shave that last millisecond of response time, customers ask vendors to "keep performance consistent and predictable, and save me as much money as possible," says Eric Wolford, senior vice president of marketing and business development at Fremont, Calif.-based netVmg Inc., which makes network route control appliances.

Predictability is crucial when companies replace expensive private networks with VPNs that encrypt sensitive corporate data and send it over the less expensive, but less predictable, Internet. In a multihoming environment, a route control server does a good enough job of speeding outgoing Web traffic to users, says Gottlieb. But achieving leased-line levels of performance and predictability over a VPN, he says, requires optimizing traffic flowing both ways, which means a route control device at both ends of the line. While that's an added expense, he says, using route control on a VPN can cut a customer's network operating costs by as much as 95% by re-

Mastering the Web Matrix

Route control appliances track Internet performance and can be tuned to identify and recommend the fastest or least expensive routes for traffic.

Corporate server

Corporate router

Internet service providers

End user

→ Shortest but slowest route through ISPs
→ Longer, but faster (or cheapest) route through ISPs
--→ Data about Web performance
--→ Routing recommendations for corporate router

Route control server

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moving the need for a leased line.

Getting a closer look inside the Internet might help in other ways. The technical analyst at the financial services firm hopes to use the reports provided by netVmg's Flow Control Platform to show which "providers out in the cloud" he's really using. Typically, if many of his customers used AT&T, he would also, in the hope of providing better performance to those customers. But if the reports showed most of his traffic actually flowed over non-AT&T lines, he might shift to a less-expensive Internet provider with little or no performance hit.

Better load balancing can also save customers from buying more links to the Web than they need, or from paying premium charges because of short-term spikes in traffic on one connection. Wireless hardware and software vendor Qualcomm Inc. in San Diego is using RouteScience's PathControl 5008 appliance on three Internet links that range from 1M to 30M bit/sec. CIO Norm Fjeldheim says that, as a result, he was able to improve network performance by upgrading one of his existing links rather than buying an entire new connection.

As organizations move more applications onto the Web and prices fall for route control products, they will become absolutely essential, says Christy. He argues that network management is becoming as crucial as employee management or financial management — and you wouldn't do either of those from inside a cloud. ▶

Scheier is a freelance writer in Boylston, Mass.

What the Vendors Are Offering

VENDOR: netVmg Inc.
LOCATION: Fremont, Calif.
PRODUCT: NetVmg's Flow Control Platform routing appliances range from upwards of $10,000 for a branch office to $100,000 for a headquarters implementation.
COMMENTS: Analyzes existing TCP/IP traffic to find problems and calculate new traffic routes. Can route traffic over fastest, and least expensive, routes depending on type of traffic or recipient. Because it doesn't add synthetic probes to the network, the company claims its technology is more scalable than that of competitors.

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VENDOR: Network Physics Inc.
LOCATION: Mountain View, Calif.
PRODUCT: NP-1000 Traffic Manager appliance monitors network traffic in real time. Prices begin at $25,000.
COMMENTS: Provides more manual control than other approaches, with a graphical display that shows charts, tables, topological maps, and instructions to help a network administrator solve the problem.

· ·

VENDOR: Proficient Networks Inc.
LOCATION: San Francisco
PRODUCTS: Hardware-based Proficient Network Policy Engine 1010A, $49,950; and 510A, $35,000
COMMENTS: Proficient claims to do the best job of proactively increasing performance and lowering cost by understanding all the complexities of each customer's

billing arrangement with its Internet service providers. It says this approach is superior to other offerings, which react to problems after finding them, or can't take into account all the ways a provider might bill a customer.

· ·

VENDOR: RouteScience Technologies Inc.
LOCATION: San Mateo, Calif.
PRODUCT: RouteScience's PathControl route control devices start at $15,000 for remote sites and at $60,000 for public Web site applications.
COMMENTS: Inserts one-pixel graphics interchange format file into Web pages to measure transmission time, and custom probes for other traffic types, such as VPN and Telnet. Unlike netVmg's product, which reports only problems, Route-Science says its tool scans both used and unused routes to determine the best paths.

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VENDOR: Sockeye Networks Inc.
LOCATION: Waltham, Mass.
PRODUCT: GlobalRoute is a service delivered through a route control appliance at the customer's site. The appliance determines optimal data routes using real-time information about Internet traffic patterns from Akamai Technologies Inc. Prices range from $4,500 to $12,000 per month, per location.
COMMENTS: Critics question whether traffic reports from Akamai give enough information to guarantee optimal data routing. Some customers may be more comfortable with route control products.

It's Too Good to Be True!

DEFINITION

An **urban legend** is a widely disseminated modern story that typically recounts an incident that is bizarre, improbable, unlikely or even seemingly impossible, yet is claimed to be true. The Internet, now the most common medium for the transmission of urban legends, has allowed these stories to reach an even wider audience than in the past.

DARWIN AWARDS

BY RUSSELL KAY

DID YOU GET the e-mail about the guy who strapped two solid-fuel rocket engines to his Chevrolet? When he lit them, the car hit 350 mph before becoming airborne and impaling itself in the face of an Arizona cliff.

Or how about 7-year-old Craig Shergold, dying of cancer in England, who wants you to send him cards, letters and e-mail so he can get into the *Guinness Book of Records*?

And did you get an e-mail appeal this week from the wife, son or associate of a deceased Nigerian leader who has $30 million legally stashed away in a foreign bank account and needs your help to get it out?

What's the veracity of those events? False; true, but . . . ; and beware. The rocket car is a great story, but it just never happened. Shergold is now 23 and fully recovered, but he never actually asked for mail — that was a publicity stunt, started by Craig's mother and a friend, that's gotten completely out of hand. The Nigerian appeal is a con game aimed at getting access to your bank account.

E-Mail Staying Power

Everyone likes a good story, and often the more outlandish a tale is, the more we want to believe that it's true. What gives these stories so much staying power today is the ease with which they can be passed along to others via e-mail.

The first two examples cited above are called urban legends or urban myths, even though one is demonstrably false and the other has elements of truth. The third is a scam, pure and simple.

Urban legends sometimes begin as an exaggeration of a true event or as a piece of pure fiction that is passed off as truth.

According to the American Heritage Dictionary, a legend is "an unverified story handed down from earlier times, especially one popularly believed to be historical," or "a roman-ticized or popularized myth of modern times."

Urban legends are typically characterized by some combination of humor, horror, warning, morality or embarrassment, with an unexpected outlandish twist that's just plausible enough to be taken as truth.

Darwinian Twist

Closely related to urban legends are a series of anecdotes immortalized in the Darwin Awards, named after the father of the theory of evolution.

Here's one representative winner: A Hawaiian poacher climbed a koa tree under the cover of darkness to steal a branch of the expensive native hardwood. Unlike a cartoon character, he didn't saw off the limb he was standing on. What he did saw off was the branch directly above him, which struck and killed him. Authorities found his body, still 20 feet up in the tree, the next morning.

The philosophy behind the Darwin Awards, according to founder Wendy Northcutt, is to "commemorate individuals who protect our gene pool by making the ultimate sacrifice of their own lives: by eliminating themselves in an extraordinarily idiotic manner, thereby improving our species' chance of long-term survival."

"In other words," Northcutt says, "they are cautionary tales about people who kill themselves in really stupid ways, and in doing so, significantly improve the gene pool by eliminating themselves from the human race."

You can find more Darwin Award winners at the *www.darwinawards.com* Web site. ▶

Kay is a contributing writer in Worcester, Mass. You can reach him at russkay@charter.net.

QUICK STUDY

OFT-TOLD TALES

For links to some of the most famous e-mailed urban legends, go to our Web site:

QuickLink 33277
www.computerworld.com

Are there technologies or issues you'd like to learn about in QuickStudy? Send your ideas to quickstudy@computerworld.com.

How to Recognize A Legend

So you get a too-good-to-be-true story in your e-mail and pass it on to a friend, who shoots back that it's an urban legend, not true, didn't happen, and how could you be so stupid? Here's a checklist of suspicious points to consider before believing or passing on a story. Any single one of these doesn't mean much, but if several are present, check it out.

■ The text wasn't actually written by the person who sent it to you.

■ The e-mail says to "forward this to everyone you know."

■ It states, "This is not a hoax" or "This is not an urban legend."

■ It makes frequent use of UPPERCASE LETTERS and multiple exclamation points!!!!!!!

■ The message seems geared more to persuade than to inform.

■ It purports to convey very important information that you've never heard before or seen elsewhere.

■ There are logical inconsistencies, violations of common sense and obviously false claims.

■ There are no references to outside sources or links to Web sites with corroborating information.

■ It's a chain letter.

■ There are subtle or not-so-subtle clues that the author is deliberately pulling your leg.

Finally, two important points: First, check to see if the message has been debunked by one of the many Web sites that cover Internet hoaxes (see below). Second, be especially wary of health-related rumors, and never, ever act on one without first verifying its accuracy with your doctor.

■ The official archive of the Alt.Folklore.Urban newsgroup: **www.urbanlegends.com**

■ Urban Legends Reference Pages, by Barbara and David P. Mikkelson: **www.snopes.com**

■ The Urban Legends Research Centre: **www.ulrc.com.au**

For a longer explanation, including a discussion of why people seem compelled to believe urban legends, see: **www.howstuffworks.com/urban-legend.htm**.

– Russell Kay

Privacy Algorithms

Technology-based protections could make personal data impersonal. By Matt Hamblen

IN THE ONGOING debate over how to protect personal information, much of the attention has focused on whether — and to what degree — the government should limit the amount of personal information companies can ask for or share.

Recently however, a small group of computer scientists has been taking a different tack. They're building software tools that promise to keep names, addresses, health status and other information secret while allowing patterns to emerge within large data sets that can help predict broad social trends, buying behaviors or massive health or terrorist threats.

Some of this software has been patented and used by government agencies in the U.S.; other algorithms are several years from practical implementation. The tools may someday be used by health care providers, financial services firms and the government for collecting and using data gleaned from individuals.

Some of the existing tools enhance anonymity. For example, the Freedom browser from Zero-Knowledge Systems Inc. in Montreal prevents sending of personal information over an Internet connection without the user's consent.

The techniques under development can change personal and private data in various ways, including making personal information anonymous, possibly using cryptography or by disguising it in other ways.

FUTURE WATCH

For example, researchers at the IBM Privacy Research Institute in San Jose are perfecting an approach that "randomizes" data before it's communicated. A Web business might use it to extract valuable demographic data without knowing the underlying personal data of the consumer.

A user would enter his age, salary or weight, and software would randomize it by adding or subtracting that number from a random value. The random value would differ for every user, while the range of randomization wouldn't change. The software would use the randomized values and the range of randomization to find a close approximation of the true distribution, IBM officials say. Experiments show a 5% to 10% loss in accuracy of data even when all values are randomized, says Rakesh Agrawal, an IBM researcher on the project.

Carnegie Mellon University in Pittsburgh is focusing on protecting personal information that's already public, such as voter registration information and hospital discharge data. "One of the biggest problems is that people think their data might be anonymous when it is not," says Latanya Sweeney, a computer science professor and director of the school's Laboratory for International Data Privacy.

Sweeney estimates that 87% of the U.S. population can be uniquely identified if only a date of birth, gender and five-digit ZIP code are known. "It doesn't take much to identify you," she says.

Sweeney helped found DatAnon LLC in Pittsburgh in August to commercialize technology she developed at Carnegie Mellon. Her tools look at an individual record in a database, determine which elements make that record unique and then modify only the elements necessary to make the record anonymous. For example, a date of birth might be

> **"** One of the biggest problems is that people think their data might be anonymous when it is not.
>
> **LATANYA SWEENEY**, PROFESSOR, CARNEGIE MELLON UNIVERSITY

generalized to a year of birth.

Another DatAnon tool known as Datafly could be deployed by public health authorities in bioterrorism surveillance to vary the anonymity standard in a data pool to match the need to identify someone, Sweeney says. For example, if a large group of people in an area were ill and missing work, public health officials could lower the anonymity standard temporarily within hospital discharge records and other information to find people connected with, or possibly responsible for, the illness.

She's also working with Carnegie Mellon students on video anonymity systems that blot out images of innocent people on surveillance tapes.

Another idea for protecting privacy is to store different pieces of data in different databases, so that no one source has a complete record that could violate a person's privacy, says Chris Clifton, an associate professor at Purdue University in West Lafayette, Ind. This method requires data encryption so that nobody can tell which information comes from which source. A patient's name, for example, might be kept in one database, his medical history in a second and his drug regimen in a third. All could be brought together only by authorized users of the data. That would be valuable, for example, if a pharmacy, doctors and hospitals wanted to collaborate on a new drug dosage procedure.

Clifton says he believes it will be several years before tools are sold that provide automatic demographic comparisons while keeping personal information secret. "The tools in use today for changing private data are very limited and tied to limited data sets and not easily applied beyond those data sets," he says. ▶

A QUESTION OF TRUST

High-tech tools may one day make protecting personal data almost foolproof. But will users trust the technology?

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The Security Manager's Road to Perdition

Good technical knowledge won't compensate for poor management skills. By Vince Tuesday

EVERY SO OFTEN I MEET with a group of my peers to trade war stories about life in the security trenches. Mostly we swap technical hints and tips about what works when trying to sell security to management. Recently, the topic was manager and staff issues.

The discussion revolved around what makes a good security staffer or manager. We all agreed that bright, inquisitive people seem to do well and that a mix of technical and people skills is vital. But these qualities are general and hard to identify in the people around us. It is difficult to provide guidance on what anyone who wishes to succeed should do, but in speaking to my colleagues, I've come up with some simple things to avoid.

The Arrogance Trap

The most common trap that security managers fall into is being arrogant. I'm sure I have suffered from this weakness myself at times but hopefully not as badly as some of the folks my colleagues have described.

A good security manager must have confidence in his abilities and make snap judgments under pressure. The problem is that these traits, when exaggerated, become a weakness.

I used to have a boss who would always show off the work he did to everyone he met. He also abused a secure investigations room our staff had set up for storing all of our tools and evidence from investigations. We had set a policy that everyone who entered that room had to be signed in and out. But this manager would hold meetings with external suppliers in the room because, I suppose, he felt it made him look like a security professional when he was surrounded by all the equipment — and white boards with the progress of investigations written all over them.

We kept a log of everyone involved in each investigation, such as those from the legal department and human resources, so we would know who had the details if the information leaked. This same chap used to boast over drinks at conferences about his work in such detail and with such a lack of discretion that I had to add workers at an external company to one list as knowing the full details of an investigation.

Such arrogance clearly can imperil the confidentiality that a security manager is supposed to protect, but an overzealous manager can also err by going too far the other way, hiding too much of the details of what he does. This "I'd tell you but then I'd have to kill you" attitude can be just as disruptive as shouting your mouth off to all who will listen. Although we try to keep up with technical trends and the latest threats, if we don't share, then we won't gain the best from the other teams in the company.

Weighing Expertise

You don't have to be a technically skilled manager to lead a security team. One of the security managers I respect most has little formal technical training but has a wonderful knack for knowing which parts of any system or presentation don't quite add up and then asking for more detail in those areas. Technical experience can help with that process if you already have that magic sixth sense, but technical experience alone isn't enough. It's much easier to teach someone with analytical thinking skills how to configure a firewall than the other way around.

An even worse weakness is to be overawed by technology to the point where your critical faculties step into reverse. I've spotted this in a few situations. One such scenario is when a security staffer gives a presentation on hacking that turns into a tutorial for script kiddie wannabes. At a conference or sales meeting, an eager-to-impress techie will stand up and do a blow-by-blow re-creation of an attack that compromised corporate servers.

Then there are the anti-malware vendors that sometimes provide demonstrations of Java code or viruses that might do dreadful things. These demonstrations aim to spread fear in the minds of naive managers. There are definitely threats out there, but in my experience, the sky isn't falling. Java and ActiveX haven't cost any business downtime other than delays caused by using scanning software.

Key Envy

The other area where a lack of knowledge can be worrying is cryptography. I'm often called in to discuss our secure network with other financial institutions' security teams to convince them it's safe to connect. Most take a look and come to an informed decision. But the companies with inexperienced security managers just ask how large our crypto keys are.

Why do they think this is important? Perhaps because it's difficult to market cryptographic products on their real strengths, vendors simply claim to be better if they have larger key sizes. Key envy leads to situations such as the 1 million-bit key size product. This doesn't really have a 1 million-bit key in mathematical terms, but in marketing terms it does.

All of these weaknesses can be dreadful, but my No. 1 is the manager who doesn't know enough about the business he's trying to protect. If you don't know what your company is trying to do and what risks it will accept while doing it, then you'll never get it right. What is the worst you've seen in a security manager? Let the world know in the Security Manager's Journal Forum. ▶

SECURITY MANAGER'S JOURNAL 🔒

> **It's much easier to teach someone with analytical thinking skills how to configure a firewall than the other way around.**

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum:

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NICHOLAS PETRELEY

Two Sides to Every dsniff Story

I'VE SAID IT BEFORE, but it's worth repeating. All network traffic should be protected by strong encryption. I recently learned that even SSL is simple to bypass, thanks to a powerful collection of free, open-source network sniffing utilities called dsniff (*http://monkey.org/~dugsong/dsniff/*). So if you think you're safe because you're using Secure Shell (SSH) instead of Telnet, or because you've connected to a Web site by using the *https* address, think again.

Network sniffing has its place, and even saved my gluteus maximus once. While managing a network, I noticed from a security log that the e-mail servers were exchanging mail with source and destination domains other than their own.

That's something e-mail servers shouldn't do unless you set them up to relay mail. These weren't relay servers, so these exchanges indicated that someone might have cracked the e-mail system.

I ran a dsniff utility called mailsnarf to capture the suspicious e-mails and see what was going on. As it turns out, my suspicions were well founded, and I ended up with a stack of papers to send to the FBI. The whole process was rather easy, since mailsnarf captures mail traffic that passes through a network node or Ethernet switch. It saves the messages in Berkeley mbox format, so you can use just about any e-mail client to read what you capture as easily as you can read mail from your in-box. The nice thing about mailsnarf is that you can specify a search pattern to look for only the network traffic that raises a red flag. This doesn't completely prevent the system from capturing innocent messages this way, but it does help minimize the problem.

Unfortunately, while dsniff is an ideal set of tools to ferret out crackers, it's also an ideal cracker's tool. The fellow in the cubicle next to yours can use dsniff to read all of your e-mail, watch all of your instant messages and even synchronize his browser with yours so that it displays the Web pages you visit as you visit them.

Some network administrators are under the mistaken impression that they're immune to rampant sniffing problems because they use Ethernet switches instead of hubs. That's an easy mistake. When a computer sends network traffic to an Ethernet hub, the hub broadcasts the information to every computer or network node attached to that hub. It's up to the node to figure out if it's the intended recipient of the message. It's intuitively obvious that any computer on the hub would be capable of snooping on all of the traffic on that portion of the network.

In contrast, an Ethernet switch directs packets only to the intended recipients. One would think, therefore, that if Computer A sends packets to Computer B, Computer C shouldn't be able to sniff that data because it doesn't "see" any traffic intended for Computer B. As it turns out, it's actually quite easy for Computer C to trick the Ethernet switch into thinking it's the intended recipient for network traffic. That's what the dsniff program arpspoof does. It allows you to intercept switched network traffic intended for others, examine and save the information, and then pass it on to the intended targets so that no one will suspect his data is being snooped.

This spoofing technique is called a monkey-in-the-middle attack, and it brings us to the weakness with SSL. Thanks to inadequate public-key handling in SSL, you can dsniff utilities to launch a monkey-in-the-middle attack to intercept SSH or https sessions. That's right. The fellow in the cubicle next to you could have all your encrypted passwords by now.

The best way to protect yourself against dsniff is to pressure hardware and software vendors to use and enforce strong encryption for all network traffic. So I urge you to vote for these changes with your dollars. In the meantime, there's no easy way to protect your network against dsniff users, but you can find some helpful suggestions at the aforementioned dsniff Web site. ▶
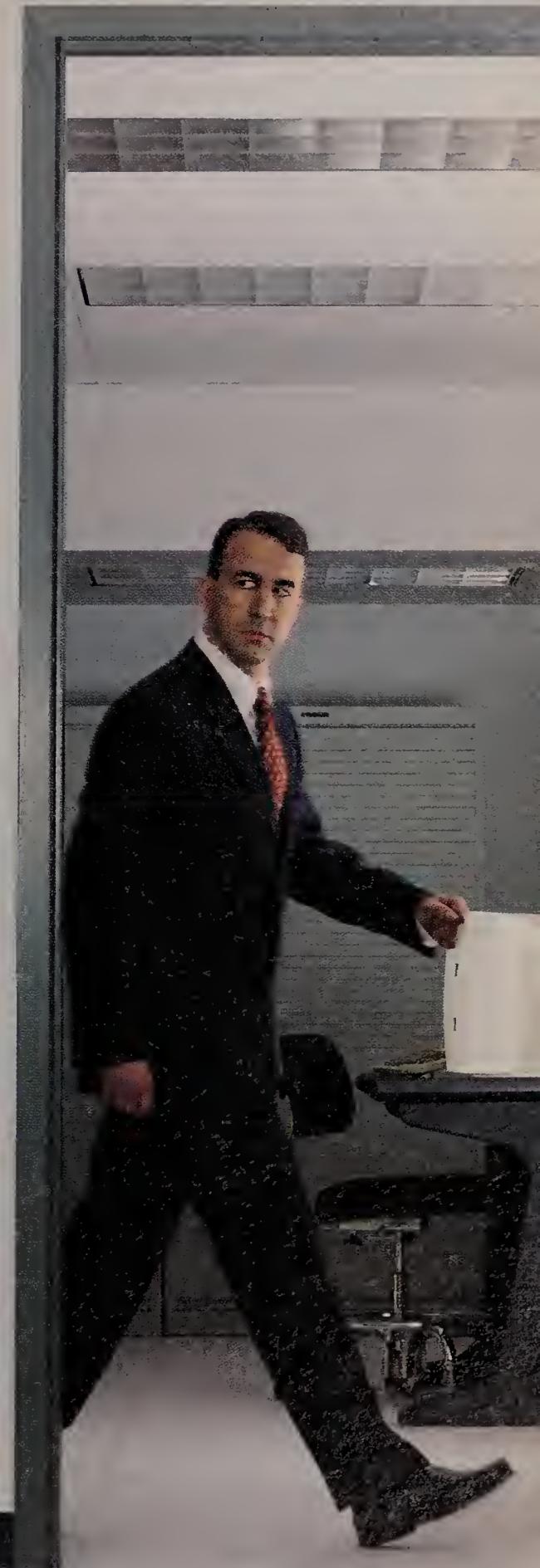
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Someday your business continuity solution will be called on to save your data.

(But what's it doing this afternoon?)

In the Know

Knowledge management takes flight and pays off handsomely at London-based BAE Systems. No longer do employees around the globe waste an average of 30 minutes a day looking for information. Now, it's just a few keystrokes away. **Page 42**

Buying Well Is The Best Revenge

Columnist Bart Perkins lays out six key steps to developing a successful IT sourcing strategy that allows you to buy the right things in the right ways for the right reasons, all at the right price. **Page 46**

E-Payments and E-Billing Come of Age – Slowly

B2C e-billing systems can pay off quickly even though few people are ready to pay bills online. And B2B e-billing and e-payment systems offer many benefits, but a lack of standards has snarled the process. **Pages 40 and 41**
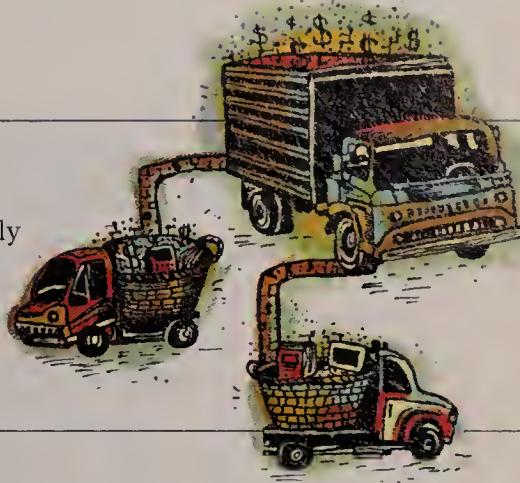
RICHARD LILLASH

Heads up: Utility-based computing services sound good, but IT users can end up paying for much more than the plug-in services they actually use. By Thomas Hoffman

More Than Meets the Eye

IN THEORY, UTILITY-BASED computing is an attractive concept, both from an operational and a financial standpoint. Companies pay only for the CPU, storage, servers or other equipment and services they need; costs are fairly predictable; and IT organizations can ramp up quickly with new applications without having to build out additional infrastructure, buy equipment or add personnel to maintain those systems.

Under utility-based services contracts offered by Hewlett-Packard Co., IBM and Electronic Data Systems Corp., among others, equipment in the vendor's data center can be dedicated to a single customer or shared among several customers that pay based on their average use of a set of servers, for example (see box, page 38). Customer satisfaction with the latter type of contract has been decidedly mixed, says Pat Sullivan, a Gartner Inc. analyst in Lowell, Mass. In cases where servers and other equipment are dedicated to a single client, "customers are very happy with those pricing arrangements because they're not paying for those things they're not using," he says. In a dedicated contract, a customer pays only for the CPU he uses.

But for users that share equipment and computing services — typically

OUTSOURCING

small to midsize companies — customers "aren't nearly as satisfied," says Sullivan. "Unless it's a pure ASP application, they don't get enough customization of the applications to meet their unique needs."

Utility agreements are essentially a new type of outsourcing arrangement. Depending on how the equipment and services are being used, the customer typically pays a flat monthly fee to have the vendor provide a certain base amount of CPU or storage, and the monthly bill is tweaked based on peaks and valleys in usage.

According to Sullivan, companies with "stable" computing environments, such as most government agencies that don't experience big spikes in processing or storage needs, aren't "apt to find benefit from the utility model." By contrast, financial services and health care firms whose transaction volumes fluctuate widely might want to consider the approach, he says.

Still, users should be aware that there are caveats to the concept that utility-based computing customers pay only for the services they actually use. For example, service providers still have to pay for the upkeep of the equipment in their data centers — even if customers aren't using it to its full potential. These costs are necessarily factored into all customers' monthly rates, according to Colin Rankine, a Giga Information Group Inc. analyst based in Norwalk, Conn.

That's one of the reasons why pay-as-you-go computing hasn't taken off in the retail industry, says Cathy Hotka, vice president of IT at the National Retail Federation, a Washington-based trade association. There's "huge interest" among retailers to leverage the seasonal benefits that usage-based computing might provide, Hotka says. Yet, in general, they haven't been able to get the price points they want, since they're finding that they typically have

The Two Models for Utility Computing

THERE ARE SEVERAL TYPES OF UTILITY COMPUTING or pay-on-demand computing services that companies can tap into, and each vendor takes a different approach to the market. But generally speaking, there are two primary models. Under these programs, customers can quickly ramp up or down with their technology needs and can usually receive extra CPU or storage within five days of their request.

1 EXCLUSIVE SERVICES: The hardware, software or services (including personnel) are dedicated to a single client.

If a company has a contract with Hewlett-Packard to scale up and down on one of its 64-way Superdome servers, for example, the system is monitored so that HP can track how many CPUs are active at any time and averages those out over the course of a month. If the customer uses an average of 16 CPUs per month but has a single, four-hour window where it uses all 64 CPUs, perhaps to crunch its monthly sales figures, the bill for the month "would look more like 16.1 CPUs," says Nick van der Zweep, HP's vice president of infrastructure solutions.

2 SHARED SERVICES: The hardware, software or services are hosted by a single provider but are shared among a group of customers.

Under a shared-services agreement, if Customer A is using 10% of mainframe CPU capacity and Customer B is using 100%, the service provider can shift some of the underused processing capacity to Customer B, with the vendor monitoring the usage.

It would also be possible to draw up contracts based on, for example, the number of transactions or PCs that are being supported during a given month or the number of e-mail clients that are being serviced during that period.

to pay premiums on underutilized mainframe CPU, servers and storage for the rest of the year, she notes. "One of our members calls it 'paying for air conditioning in January,' " she adds.

In addition, mainframe customers that lock into one- to three-year usage-based contracts, which set the CPU pricing rates for all three years upfront, may also end up overpaying for CPU cycles within six months of starting a contract, because the price of mainframe computing power continues to drop by roughly 30% per year, according to Rankine. Moreover, metering techniques that track other types of usage "are pretty primitive, making [accurate] chargebacks difficult" for server-based services as well, Rankine says. Some vendors he has visited literally hand-count servers to calculate pricing, he says.

Rankine also believes providers are "disincented" from making efficiency improvements, because customers — rather than the vendors themselves — pay for the the lion's share of storage and CPU cycles. "It's not that [vendors] maliciously de-tune systems, but I've done enough audits to see that adding tape mounts and improving storage utilization just stops dead in its tracks, and I've seen that consistently across outsourcers and in a number of customer engagements," he says.

Given the way utility-based computing contracts are structured, they seem to be a good fit for big companies with high transaction loads, and for other companies where it makes more sense for a vendor to manage an application or service. Says Glen Salow, CIO at American Express Corp. in New York, "I think you have to have enough volume that the absolute economics make it interesting. You've got to make sure the payback is absolutely large enough to make the risk worthwhile." ▶

WHAT'S ON TAP?

For a look at forthcoming utility-based computing services from IBM, HP and EDS, visit our Web site:

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Pay-on-Demand Requires the Right Fit

American Express Corp.

American Express in New York began looking at pay-on-demand computing in November 2000 to support what were then the company's "growth initiatives" in its retail/financial services and payments businesses before the economy soured, says CIO Glen Salow. "We recognized that others who could operate at five to seven times our [transaction] volumes could possibly do it more economically, he says.

Last February, Amex and IBM signed a seven-year, $4 billion outsourcing agreement that calls for IBM to exclusively manage Amex's IT infrastructure, including its mainframes, distributed servers, PCs and help desk operations. Amex retains control over its application development, IT strategy, architecture and standards. In addition to ensuring the smooth transition of its 2,200 IT employees and cutover of its IT operations to IBM, "the third thing we looked for was whether the economics had met up with the business case, and they absolutely do," says Salow, who points

CASE STUDIES

to reduced costs per CPU cycle and better-than-expected service levels. While some of those costs go toward managing Amex's infrastructure, the CPU costs, for example, scale up and down on a monthly basis "to accommodate growth and contraction in an economic fashion," says Salow. Compare that with a traditional outsourcing arrangement in which a customer might pay a flat monthly fee for a prespecified amount of CPU, even if all of that CPU isn't actually used during that month.

Towers Perrin

Other pay-on-demand customers report similar successes. A year ago, Towers Perrin hired IBM to host an exclusive e-procurement system for the New York-based management consulting firm. "By outsourcing the application, not only is someone else responsible for it, we didn't have to buy the equipment, nor did we have to hire or train staff to support it," says John Hays, director of global sourcing and procurement at Towers Perrin, who estimates that his com-

pany would have had to hire two full-time employees to manage the system.

Though he declined to discuss the costs of the project, Hays says Towers Perrin went into the engagement expecting to save 25% to 35% of what it would have cost the company to develop and manage the e-procurement system in-house. "And we're right on target" with those cost savings, he says.

Dal-Tile International

Dal-Tile International, a $4.16 billion ceramic tile maker that merged with Mohawk Industries Inc. in March, tapped IBM in April 2001 to manage and host an Internet-based electronic data interchange (EDI) service. Dal-Tile executives estimated that it would be five to 10 times more expensive to buy the needed hardware and software and manage the service in-house. The IBM service, which provides Dallas-based Dal-Tile with hardware and software as needed, "has stayed within the cost structure we expected," says David Fling, director of EDI services at the company's Lansdale, Pa., office.

Syntellect Hosted Services Group

Syntellect Hosted Services Group, an Atlanta-based division of Syntellect Inc., which hosts integrated voice response (IVR) systems for corporate customers, set up a usage-based contract with HP two years ago for the two HP 9000 servers it runs to support multiple applications for 30 to 35 customers. The IVR services it provides are typically for a fixed period, such as a multiweek sales campaign for an auto dealer. As a result, the processing loads on the four-processor servers "go through a lot of peaks and valleys," says Pat Medlock, director of operations at Syntellect.

That's where the usage-based agreement fits in. Under the deal, Syntellect can scale up or down on the number of processors it uses at a given time. Syntellect owns the servers, which come embedded with an instant messaging-type service that alerts HP when additional processors have been tapped.

"Adding another processor takes a minute. If I had to order another server [under a purchase or leasing deal], we'd be talking weeks to work something like that through and then get it into a production environment." Medlock says.

— *Tom Hoffman*

Moving Beyond Just Paying the Bills

Only a small percentage of consumers pay their bills online, but those who do buy more and cost less to serve. By John Webster

ELECTRONICALLY sending bills and receiving payments has been a tough sell to consumers. But your customers don't have to come online in droves for you to quickly achieve a return on investment in an e-billing system.

Without question, business-to-consumer e-payment adoption rates have been disappointing. This year, less than 1% of all worldwide consumer bills will be paid electronically, according to TowerGroup, a banking and financial services research firm in Needham, Mass.

But don't let the paltry acceptance rate scare you off too quickly. Gartner Inc. in Stamford, Conn., has concluded that e-billing pays off for companies when as little as 9% of their customers opt to use electronic systems.

In June, Gartner surveyed 101 companies that send bills to consumers electronically and 336 companies that send bills to other businesses electronically. Companies surveyed represented the telecommunications, insurance, credit card and utility industries. Gartner found that, on average, the companies saved $13.1 million annually, thanks to decreased call center costs, faster dispute resolution and lower paper-based payment processing costs.

These same measurements have played a key role in determining ROI in e-billing at Sprint Corp.'s Tulsa, Okla.-based Mass Markets Organization, which includes the company's residential long-distance service. Sprint uses a homegrown e-billing system that's built into a Web-based consumer self-service application called My Sprint Account Manager, or MySAM.

Even though only about 5% of its long-distance customers pay their bills online, Sprint has achieved cost savings by lowering paper invoice production

and postage costs, streamlining payment processing and reducing customer service calls, says Claudia Moore, a senior marketing manager.

"Naturally, with fewer incoming calls, we are able to manage our workforce accordingly," Moore explains. "It doesn't necessarily mean fewer reps, but it may mean more of them are available for cross-selling or handling inbound sales calls."

She notes that the company saves "$80 per customer for everyone who chooses to use MySAM over the course of one year."

Customer turnover for Sprint's residential long-distance service group has also declined, thanks to the system. Thirty percent fewer e-billing users switch carriers compared with those who use regular mail to pay their bills, says Moore.

Meanwhile, at Sprint's local telephone service division, only 4% of all customers pay their bills online. The slow adoption rate isn't considered a failure, however, says Patty Montague, manager of online billing.

"We're on track with what we expected in terms of adoption. Our focus is not just on e-billing, but also

online customer service and sales," Montague notes.

Like its long-distance counterpart, Sprint's local service division measures ROI not so much in dollars saved, but by how much revenue is generated by other services offered alongside e-billing on the Web. This can be compared to how many customers ordered the same service using the phone, adds Montague.

User-Friendly

Telephone and credit card companies are among the leading business segments that have adopted business-to-consumer e-billing systems, in part because their customers like having the ability to examine online the details of their bills. These companies have spent the time and money required to provide the tools that allow

this, and they've made them user-friendly, according to Gartner analyst Ken Kerr.

For example, says Kerr, take a feature such as reverse-number lookup. If a customer looking at his phone bill online sees a number he doesn't recognize, he can click on the number and the call recipient's name and address will pop up on-screen. That saves a call to the phone company. What's more, the company can avoid the expense of having workers resolve bill disputes. Instead, the customer can click on a dispute button in the electronic bill. "The telco doesn't want to spend $20 to $30 to investigate the dispute," and may decide not to do so except for customers who repeatedly dispute charges, says Kerr.

E-business managers say that adding self-service features to an e-billing system can also bolster customer satisfaction. At AT&T Wireless Services Inc. in Redmond, Wash., a combination of a homegrown self-service application and e-billing software from eDocs Inc. in Natick, Mass., has helped the company forge stronger customer relationships. This was achieved in part by offering additional services, such as conference calling, free to online billing customers. These additional services help lock in customers for the long term.

Fewer than 5% of the company's 3 million registered online customers currently use the service, but the program does benefit the company. "We've found that our customers who use e-billing and other online services stay with us longer," says Judy Cavalieri, director of e-business strategy.

Cavalieri declined to disclose specific dollar amounts but says online customers, including those who use e-billing, spend 30% more on wireless services. They buy more phones and service plans online and use features that let them check how many minutes are left in a calling plan and sort calling information.

In the final analysis, experts say the decision about whether to deploy an e-billing system to customers should be based as much on potential customer service savings as on bill payment processing savings. Immediate revenue increases from online billing are difficult to measure, so companies considering the technology should look at the potential financial gains from additional self-service features that can be tied to e-billing systems. ▶

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TOO MUCH of a good thing can be a problem, at least when it comes to business-to-business electronic payments.

While there are only a few standard ways to make payments electronically — Federal wire, automated clearinghouse (ACH) or purchasing card — these methods are impractical for many business transactions because they don't convey much information other than who, when and how much. A business needs to know more, such as the invoice number, whether the invoice was paid in full, and to which account to credit the payment.

E-BILLING

That's where electronic invoicing and bill presentment (EIBP) comes in, but a variety of vendors and incompatible technologies makes it difficult for a company to decide on any one EIBP system — especially when its business partners may pick a competing one.

"Competing vendors are not talking to each other," says Pete Lambert, a vice president of treasury services at Wachovia Corp. in Winston-Salem, N.C. "You've got different file formats. As a customer comes in to [the vendor's Web site] to review their bills, you have different downloads into their accounts payable systems."

As a result, the biggest growth in EIBP is happening among business partners that are grossly unequal, such as a large corporate buyer and its dependent suppliers.

"The larger companies prefer to do business electronically; it's much more cost-effective for them," notes Ken Vollmer, an analyst at Cambridge, Mass.-based Giga Information Group Inc. Those companies, in turn, put pressure on their smaller partners to sign up with the vendor they chose.

Growing Acceptance

Today, about 20% of all business-to-business invoices are sent electronically, according to Avivah Litan, an analyst at Gartner Inc. in Stamford, Conn. That number is expected to rise to 62% by the end of 2005. Collaborative applications will be the big story behind the growth, Litan says.

"With the Internet, you can talk about things line by line, you can partial-pay, negotiate terms online, link to procurement and sales processes," she explains. "It's not just about turning paper checks into ACH or Federal wire payments."

International Playthings Inc. in Parsippany, N.J., has 25 suppliers, mostly in Asia. The payment process for the $30 million maker of educational toys used to require faxes, letters of credit and a great deal of sitting around and waiting for various documents.

"It took a lot of faith to change the way we were doing business," says purchasing manager Holly Harrington. "But I can't imagine going back to the way we used to do it."

So far, International Playthings has saved $50,000 in invoicing and payment processing fees by moving its payments to an EIBP system from New York-based TradeCard Inc. And International Plaything's suppliers are willing to give the company a discount in return for faster payment of invoices. In some cases, suppliers are getting their money 10 days faster than they would have with letters of credit, which are bank-provided payment guarantees.

Like International Playthings, Dedham, Mass.-based TAC Worldwide Cos. decided to get its feet wet by asking its vendors to start sending in electronic invoices. TAC, a global provider of professional staffing services, picked an EIBP service from Portland, Maine-based Clareon Corp. to automate accounts payable and payment processing with the third-party staffing agencies the company uses.

The process of getting the vendors onto the system took about a month and a half, but it took only 18 hours for TAC to hook up its system to Clareon's, with the data automatically transferred in and out of TAC's Oracle database management system. But since not all of TAC's systems are as modern as its database, CIO Steve Morin is looking forward to the next development in Internet technology: Web services.

"I believe that this is a very promising aspect of development, and it's something that we're going to be able to take advantage of tremendously in the long term," he says. "We will be using [Web services] in integrating [Clareon] with legacy applications."

Clareon itself has bet big on open standards, with a Java front end and an XML-based data model, and it has positioned itself to offer Web services support once the market is ready.

"Early adopters are trying to utilize Web services for mundane tasks," explains Clareon Chief Technology Officer Clyde Thomas. "For mission-critical applications, there's a little bit of hesitancy. Payments need to be bullet-proof. They need to always work."

Until Web services are ready, Clareon is working on multiple ways for buyers and suppliers to access its billing and payment system, which already has more than 3,000 customers.

"We integrate into any ERP or accounts payable environment out there," Thomas said. "We've even integrated into some old legacy environments — Cobol that was written in the '60s." ▶

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HOW TO BRING SUPPLIERS ONLINE

Sprint's strategy is to pay them faster. Read more online:

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Cost Savings and Collaboration Drive B2B E-Payments

But competing systems work to snarl the flow of transactions. By Maria Trombly

In The KNOW

Knowledge management pays off for BAE Systems.

BY THOMAS HOFFMAN

T'S ONE OF THOSE BLUE-SKY goals to which many big companies only aspire: capturing the seemingly infinite amount of intellectual capital that's carried by tens of thousands of employees around the world and using it to achieve competitive advantage. But it's a flight that's well under way at London-based BAE Systems PLC, formerly British Aerospace, which is getting solid returns on a knowledge management intranet. Thousands of BAE engineers scattered across five conti-

CASE STUDY

nents in 110 offices are using the system to search for information that may be vital to big initiatives and to identify and eliminate redundant project work.

Like other far-flung multinationals, the $20 billion-plus aerospace and engineering giant suspected that its engineers and other workers might be wasting a lot of time searching for information scattered across the enterprise. So in early 1999, BAE Systems invested roughly $150,000 to study its global operations to see whether "we had the right information to support decision-making processes and if people had the right learning systems to help them support their day jobs," says Richard West, BAE's organizational and e-learning manager in Farnborough, England.

The results, says West, "were certainly eye-opening." BAE Systems discovered that nearly two-thirds of its top 120 decision-makers didn't have the right information at key stages. The company also found that 80%

of employees were "wasting" an average of 30 minutes each day trying to find the information they needed to do their jobs. Another 60% were spending an hour or more duplicating the work of others.

"In an organization as massive as BAE Systems, we seemed to be working in silos where we didn't seem to know what was going on elsewhere," says West.

One of the problems BAE Systems officials discovered through the study was information overload on its intranets. The information itself was often unstructured, and the search engines were inadequate for conducting keyword searches to find information, says West. The company decided to test two or three of the top intranet search engines over three months and compare their ability to find information, says West.

One of the search engines BAE Systems tested was from San Francisco-based Autonomy Corp., whose "ability to retrieve information was second to none," says West. What sold BAE Systems on the technology was its ability to flag whether other people in the organization are searching against similar information and, perhaps, working on common problems.

That kind of matching identification helped the Windows NT-based Autonomy system pay for itself just seven months after it was installed in late 1999. One of the system's first big payoffs came soon after, when two disparate groups of engineers in the U.K. were working on wing construction issues for the company's Harrier 2 military aircraft. After using the Autonomy system to search for wing specification information across the company's intranet, one of the engineering groups discovered that the other group was working on the same problem. Catching the redundancy early in the cycle helped save the company millions, which ultimately paid for the licensing and maintenance of the Autonomy search engine, says West. He declined to say how much BAE Systems paid for the search engine.

90% Faster

A year into using the Autonomy search engine, BAE Systems evaluated its performance and determined that it was able to reduce the time needed to retrieve information from its intranet by 90%. Christopher Tree, a systems engineer in Farnborough and one of 20,000 regular users of the search engine, says it is "helping me do my day-to-day job."

For instance, the central IT organization at BAE Systems is conducting a software Capability Maturity Model audit throughout its global offices over the next several weeks. Tree plans to use the software to "determine where

STEP 1
A BAE Systems engineer logs into the Autonomy search engine and uses natural language to initiate a search for "Harrier 2 wing specifications," for example.

STEP 2
The Autonomy search engine integrates information from multiple repositories across BAE Systems' global IT infrastructure through an "understanding" of content.

STEP 3
The software then identifies and ranks the main concepts within the retrieved content and automatically categorizes, links, personalizes and delivers that information to the engineer.

the audit has taken place before and assist me in preparing for it," he says.

One of the features Tree likes best about the search engine is its ability to "scan the network and draw upon that information" so he doesn't have to log in and send engineering or project information into the portal himself.

Using previous search engines on the company's intranet, Tree says, it would often take seven days out of a monthlong project to search for and find best-practices information. Using the Autonomy system's matching identification capabilities, "I can now literally find a name and contact information within minutes," he says.

In fact, because it took so long to find that kind of information before, Tree says he rarely invested the time to do the research. The upshot was that a lot of intellectual capital was never tapped.

According to a recent analysis of thousands of customer case studies conducted by Wellesley, Mass.-based Nucleus Research Inc., content management systems and portals typically yield poor financial returns because they're rarely tightly focused or well integrated with other systems. BAE Systems considered those issues before installing the Autonomy system, says West.

For a knowledge management portal to succeed, "it's got to form part of a measurable process," says West. "You can have a whiz-bang solution, but if you say, 'Here's a great search engine; use it if you want to,' will they come? Not likely." ▶

BEFORE INSTALLING its Autonomy search engine, BAE Systems found that employees were wasting an average of 30 minutes a day looking for information, says e-learning manager Richard West.

Free Trade in Ideas

Looking outside your business may be the key to innovation

If you're having trouble sparking innovation in your company, maybe it's because your focus is too narrow. In October's Harvard Business Review, **Darrell Rigby,** *director of Bain & Co.'s survey on management tools and trends, and co-author Chris Zook suggest that looking outside your company for ideas can increase innovation while helping you better define your core business. Rigby spoke with Kathleen Melymuka from his Boston office.*

What is open-market innovation? A comprehensive system for increasing the flow of new ideas into and out of a business. It's like developing free-trade policies for a country.

How does it differ from a joint venture? Joint ventures are just one of many tools for implementing open-market innovation. [Others include] strategic alliances, in-licensing, out-licensing, mergers and acquisitions, innovation exchanges, contract research. [There are] dozens of tools.

What are in- and out-licensing? In-licensing is when you are licensing into your company an innovation from somebody else's business, and out-licensing is when you own the intellectual property but are giving [other companies] the right to use it. We're convinced that companies need to increase the flow of ideas into and out of their organizations.

How will letting ideas flow out of my organization help my business? Four years ago, BellSouth took a look at a billing system it had developed and found that even

though it had been expensive to develop, it was not a major source of competitive advantage. They calculated that competitors would create similar systems and decided it would be better to license the system to competitors to maximize return on investment and create industry standards that would favor BellSouth development programs going forward.

This is the latest in a series of monthly discussions with authors of articles in the HARVARD BUSINESS REVIEW on topics of interest to IT managers.

How does open-market innovation help companies better understand their core competencies? When companies only compare their capabilities relative to their past, it's easy to convince themselves that they're world class. But when you compare yourself objectively to competitors, you learn the truth. If you're close to the best, those comparisons help make you even better. If you're not, they help you cut your losses. When I'm shooting baskets by myself in the driveway, I can almost hear the crowd going wild. But I had a chance to play against some former Boston Celtics recently, and that made it very clear that my competitive advantage is in business analysis and not in basketball.

You also say exporting ideas helps companies keep their talent. That sounds counterintuitive. It does, but there are very creative people in companies who feel passionately about innovations and want them to go to market. If the company they work for won't do it, they will find someone

DARRELL RIGBY: You need to increase the flow of ideas into and out of your company.

who will. The advantages of open-market innovation are two-fold: If an innovation is marketable, but perhaps [can be handled] more effectively by another company, then they still get to see the product get to market and they establish a track record that gives them credibility in the company. If [the innovation] fails to attract attention, than it's harder to blame your ignorant, short-sighted boss, because the market has spoken. You learn why it didn't work and what it would take to make future innovations more successful.

Why is technology a fertile area for open-market innovation? There are five factors that make an industry more amenable to open-market innovation. One is the intensity of innovation: How frequently are innovations taking place? Technology is very high on that scale.

Second is economies of innovation: How much money does it take to come up with an important innovation? In technology, garage shops often come out with the most innovative breakthroughs.

Third is the need for cumulative innovation that builds on other innovations so you get something better than the individual pieces. Technology is filled with opportunities for cumulative innovation.

Fourth is the applicability of innovations across companies and industries. Technology innovations have such a wide variety of applications: Something that shows up in the space program ends up being useful in a consumer's home theater.

Last is market volatility: How often do unpredictable disruptions take place in the industry that are hard to forecast? You often have five competing tech-

Getting Started

1 **UNDERSTAND** what the company's business objectives are, what role innovation plays in those and what activities will be central to the company's future and must be strengthened.

2 **ANALYZE** the company's innovation projects, and categorize which of those support the main business objectives and what the company's track record is in those types of projects.

3 **MAP** the hot spots for relevant innovation around your business, and ask how many innovations are likely to come from companies other than your own. Bain & Co.'s survey found examples where 95% of innovations are coming from other companies. If that's true, you need to ask how you can open that up.

4 **SURVEY** people both within and outside of your company about what they think are the barriers to innovation, and talk to vendors and customers about how it looks from outside: Where are the bottlenecks?

5 **IDENTIFY** the most important innovations in your industry, understand the origins of those ideas and ask what you could do to get better access to those innovations. Then get going on it.

nologies, and no one knows which will win. That also makes open-market innovation valuable in technology.

Can the open-market innovation approach backfire? It certainly can backfire. Companies like

Xerox that virtually gave away a stream of innovation, from the computer mouse to the laser printer, demonstrate that if companies are unsophisticated about the market value of innovations, they can give them away too cheaply. Also, if they suddenly begin meeting with lots of new companies to talk about ideas without proper legal guidance and then decide to implement them, they can find themselves, as Disney did, being sued by people who claim they stole the ideas.

How do I manage the risks of sharing innovation? Part of it is working with the senior management and legal counsel to develop policies around what you will and will not share and how you're going to do that and who is going to do that. What you don't want is renegades either buying or selling technology without understanding the strategic role of technology in the corporation's portfolio. Leadership has to take an active role, particularly in the beginning, about setting policies and procedures. Then as the organization gets better at understanding and implementing those policies, they can loosen the reins and give more experienced managers opportunities to act more independently.

Who manages open-market innovation in the company? If it's going to work, everyone does. It is likely to start at the top because the chief executive has to give permission for the organization to take these risks. But to work, it needs the eyes and ears and hearts of everyone because it has to become a way of life. The organization has to be proactively looking for other companies that could benefit from an innovation. They have to explore all direct and indirect competitors' innovations and see where something could help their company. ▶

BART PERKINS

Buying Well Is The Best Revenge

IN THESE DIFFICULT ECONOMIC TIMES, everyone is looking for ways to reduce costs. Buyers and sellers are eager to cut quick end-of-year deals to improve 2003 prospects. Outsourcing is often touted as a panacea for reducing costs. But before you make decisions, develop a sourcing strategy to explore all of your alternatives.

Few CIOs would consider developing a major new software application without knowing how it fit into their overall architecture. Even fewer would start the project without technical specifications and a good systems development methodology. Yet many IT organizations still approach acquisition and outsourcing decisions one at a time, without an overall context or a rigorous process. As the role of IT continues to shift from building applications to acquiring them effectively, the same rigor must be applied to sourcing decisions.

A sourcing strategy provides linkage among your architecture, your technology, the functions that IT performs, and your purchasing decisions. It determines how to acquire IT products and services against a plan. Here's how to get started:

1. Define your potential acquisition components. Segment all the functions within your IT organization. A typical list might include server center, WAN, desktop, applications development and applications maintenance. Include business processes such as payroll and HR if applicable. Use a level of granularity appropriate to the size of your organization. For example, a "server

BART PERKINS, former CIO at Tricon Global Restaurants Inc. and Dole Food Co., is managing partner at Leverage Partners Inc., which helps CIOs manage their IT suppliers. Contact him at BartPerkins@ LeveragePartners.com.

center" might be broken down further into server operations, help desk and production control.

2. Select a delivery channel. Choose the approach that provides the best way to supply each component:
- Insource: Use in-house resources.
- Resource augmentation: "Rent" expertise (consultants, contractors).
- Facilities management: Transfer resources, retain location.
- Outsource: Transfer resources to an outsourcer.

3. Assess your motivations. Determine the optimal balance between cost and service. Will you outsource a function critical to business success if you can save money? Is your company biased for or against outsourcing?

4. Address critical considerations. How will you refresh skills and technology? How will privacy and security be protected? What is your exit strategy? What is the optimal length of the contract involved? What are your contingency plans if a supplier files for bankruptcy protection or is acquired? How will you address the cultural issues?

5. Once you have determined your sourcing strategy, select a new or existing supplier to provide each component. After all suppliers are designated, carefully analyze the entire scope of all components, products and services you wish to acquire from each supplier. Look for gaps and overlaps. If you need to switch suppliers in any area, determine an effective migration sequencing plan. For example, if you choose to outsource payroll but are about to change your compensation structure, you will probably want to make those changes first.

6. Now, reassess your negotiation and concession wish lists. As a result of the protracted buyer's market, almost all technology suppliers are willing to make major concessions. Rather than negotiate strictly on price, smart IT buyers are using their leverage to influence other areas. For example, you could ask a supplier to do any of the following:
- Modify components of its architecture to support your needs.
- Deliver new features earlier than planned.
- Alter its product rollout schedule.
- Increase service and support levels.

Work with your major suppliers to create a mutually beneficial partnership. Remember that it won't always be a buyer's market.

The sourcing strategy enables you to realize your IT strategy more effectively through better acquisition of products and services. It will reduce costs, align your suppliers' directions with yours, and provide an overall plan that keeps sourced components from being acquired in isolation.

The bottom line: A sourcing strategy allows you to buy the right things in the right ways for the right reasons, all at the right price. ▶

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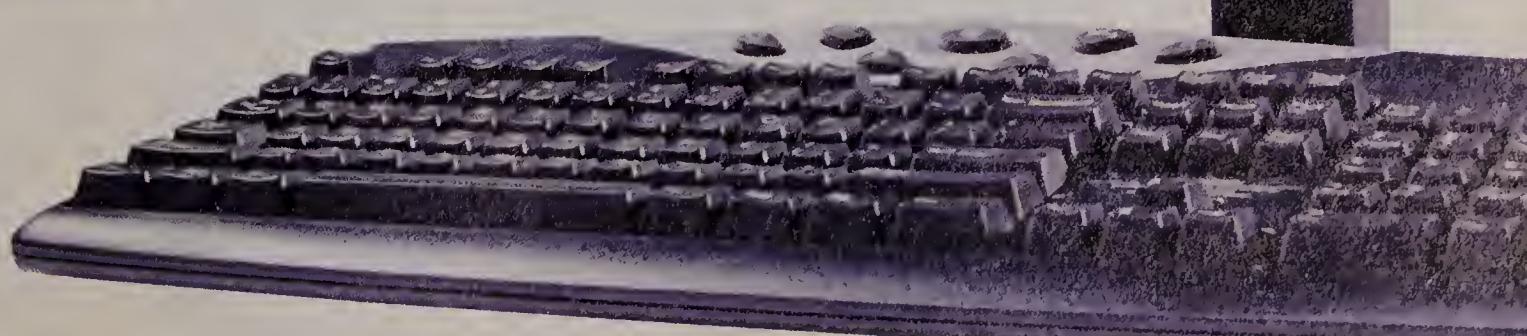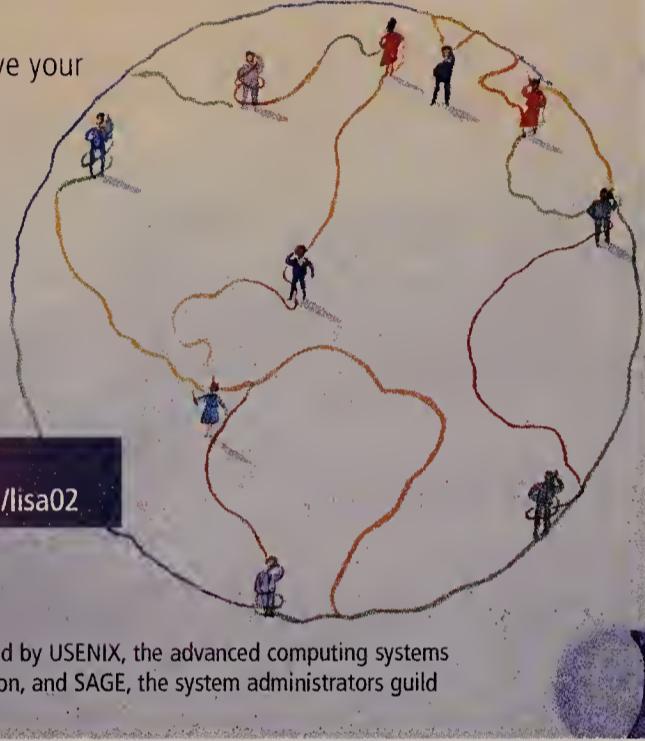
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Seeking qualified applicants for the following position in Orlando, FL: Senior Programmer Analysts. Formulate/define functional requirements and documentation based on accepted user criteria. Education or prior work experience must include the following: IBM MVS Operating Systems; IBM DFSMS (Systems Managed Storage); IBM DFHSM (Hierarchical Storage Manager. 40 hours a week, 8 a.m. to 5 p.m. Annual Salary: $74,580/year. Employer paid advertisement. A non-discriminatory /affirmative action employer. Send resumes to: MDCD Cadillac Place 3032 West Grand Boulevard, Suite 9-400 Detroit, MI 48202. Reference # 202569.

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Computer-Programmer/Analysts needed. Seeking qual. cand. possessing BS or equiv and/or. relevant work exp. Exp. must include 1 yr. working with GE Application Integrator and Perl. Work with 3 of the following: GE Application Integrator, GE Enterprise, Java, XML, Perl, Oracle, Unix. Mail resume & ref. to: Group Health Plan, Inc., Attn: HR, 8100 34th Ave., Bloomington, MN 55425.

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IT Developer 4, Wachovia Corp. Charlotte, NC. Perform complex analysis, design, programming & debugging activities in C/C ++ and Java for Wachovia Home Equity divisions "decision engine" loan optimization system. Reqs. BA in Computer Science or a rel. disc. & 3 yrs exp. in pos. offered or as a Systems Analyst, Consultant, or Systems Engineer. The 3 yrs reqd exp must have incl. work w/ software eng. w/ full software dvlp. life cycle methodology implementing N-Tier enterprise level applications. 2 yrs of reqd exp. must have incl. work w/ OOA and OOD, Java /J2EE, XML, C++, Websphere, LDAP and Unix, database design and SOL progr. in Oracle or DB2. 40hrs/wk, Send resume & cvr. ltr. to Jane Higgins, 1525 West. W. T. Harris Blvd., Charlotte, NC 28288-0775. No phone calls please.

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Send resumes to: Recruiter GITS, LLC, 7067 East Chestnut Hill St., Littleton, CO 80130. Email: recruiter@globalinfotech services.net no in-person resumes /interviews only respond by mail or e-mail.

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Software Engineer
Design and develop COM components that control the business logic. Design and develop HTML screens that enable data entry, querying and processing of front-end business rules using JavaScript. Must have Bachelors Degree in Engineering or Computer Science & 2 yrs. exp. or 2yrs. exp. in a related position w/ability to use: Visual Basic, VB script, Java Script, Visual Interdev, XML, HTML, ADO, SOL Server 2000, Windows NT 4.0. Must be willing to relocate.

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Roselle IL 60172-3572
Attn: HR MGR

MicroMash, an educational software publishing company seeks Senior SGML/XML Practitioner (Programmer) to work in Englewood, CO. Design and develop SGML tools and related software programs and provide technical assistance to editorial staff. Use DTD design, and OmniMark transformation software in the design and development process. Design UNIX Shell Scripts. Job requires 2 years of experience designing SGML tools, including DTD design and designing UNIX Shell Scripts. Position also requires working knowledge of OmniMark transformation software. Respond by mailing resume to Bart Rogers, Micro-Mash, 6402 S. Troy Circle, Englewood, CO 80111.

Senior Developer needed to develop application to track company's unique distinct minutes using videoclipstream software; develop high level/detailed level /class diagrams of proposed applications; develop navigation /database design/html graphics of proposed applications; set up/customize web servers for each application; test and debug all applications; maintain updates on most recent technology; present progress reports to management. Use J2EE architecture, JAVA, C++, Struts Framework, and SAPDB/MySOL to develop /code/store all info for applications. Min req are Masters in Info Systems Mgmt and 1 yr in-job or job related past exp, including exp with SAPDB/MySOL, Struts Framework, Linux OS, all JAVA programming languages, RMI Servers, all web services, and familiarity with LAN and MVC architecture. Resumes and cover letters (no calls) to HR Dept. 7361 Calhoun Place, Ste. 302, Rockville, MD 20855. EOE.

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Programmer Analysts to analyze /design s/w appls using SAP R/3, ABAP/4, Workflow Technology, VB, Java, HTML, ASP, Servlets, Oracle, MS SOL Server, on UNIX and Windows OS; perform database monitoring, quality control, coding and testing of projects; generate batch reports from existing data and debug for better performance. Require: BS or foreign equiv (CS/Engg) & 1 yr exp in IT. High Salary. Travel involved F/T. Resumes to: HR, Smartsoft International, Inc., 4898 South Old Peachtree Rd. Ste 200, Norcross, GA 30071.

Technical Consultant (Atlanta, GA) to apply technical retail industry and company-specific knowledge to ensure successful implementation of proprietary retail management software for customers. Consult with customer and partners, providing in-depth technical product knowledge during implementation cycle; Assess, identify and respond to customer's technical needs and requirements; Report to implementation management on status of project on on-going basis. Requires application of technical skills of integration, including interface design and development, integration testing, interfaces to web-sites and e-commerce applications, SOL and C languages, business process and Rapid Integration methodologies. Requirements: Bachelors degree in Computer Science, Mathematics, Engineering or related field and 5 years experience in the job offered or a related occupation, such as Software Development and/or Technical Support. (In lieu of Bachelor's +5 years experience, employer will accept a Bachelor's degree in one of the named fields, plus MBA). Competitive salary offered. Apply on-line at www.retek.com/apply. Be sure to include "CompWorld" as the source code.

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Database Administrator to do logical and physical design of Oracle database; Code test and implement Oracle scripts applying knowledge of Database Management Systems; Calculate optimum values for Oracle database parameters; performance tune Oracle databases; Model Oracle database security; manage backup and recovery of Oracle databases; make changes to Oracle database applications using knowledge of Oracle Applications 11i, Oracle 8i, SOL *DBA and PL/SOL. Requirements: Bachelor's Degree, educational or functional equivalent, in Computer Science or related field and two years experience as a software engineer or DBA, expertise in Oracle database administration which includes logical design, physical design, performance tuning, backup and recovery, coding of scripts, knowledge of Oracle Applications 11i, Oracle 8i, SOL*DBA and PL/SOL. Salary: $66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and relocation. Apply: Fayette County Team PA CareerLink, Attn: JS Supervisor, 32 Iowa Street, Uniontown, PA 15401-3213, Job No. WEB279697.

Software Engineer to research, develop and direct software system testing procedures, programming and documentation. The candidate should be well versed in all phases of software development life cycle and SEI methodologies. Should be technically sound with hands on experience in building applications using PL/1, COBOL, DB2, IMS, CICS, C, C++, UML,Rational Rose, UML, SAP, ABAP/4, Oracle and DB2. Master Degree in computerscience or Engineering, and two years experience. Send Resume to Datum Software Inc, 501 Silverside Road, Suite 138, Wilmington, DE 19809.

Computer
Database Administrator

Develop definable, reliable and retrievable database activity monitoring operational processes, procedures & standards. Design, code and test new computer databases including data warehouse. Req: BA in Bus Admin & min 2 yrs exp in System Devl, Database Admin or related area. 40 hr/ wk. Job/Interview Site: Los Angeles, CA. Send resume to L A Care Health Plan, 555 W. Fifth St., 20th Fl., Los Angeles, CA 90013.

CONSULTING PRINCIPAL to manage, plan, coordinate and source large IT projects related to the design and development of computer software systems for supply chain management and other retail and non-retail software applications applying principles of mathematics and knowledge of programming techniques and computer systems, as well as knowledge of current retail business processes and best practices commonly used in business assets; Review project feasibility studies, establish work standards, and assign and schedule work to subordinate managers and supervisors; Ensure that goals and objectives of projects are accomplished within prescribed time frame and funding parameters. Extensive travel on assignment to various client sites throughout North America is required. Require: B.S. degree in Computer Science, Mathematics, or a closely related field with five year of experience in the job offered or as a Project Manager or CIO. Competitive salary offered. Send resume to: Sandra J. Bryson, Kyrus Corp., 5 Artillery Road, Taylors, SC 29687; Attn: Job EB.

Staff Scientist (Atlanta, GA) to identify, solve and deliver solutions to problems in multiple areas of Supply Chain Management including Order Fulfillment, Shipping, Scheduling, Business Planning and Production Planning. Develop technologies, algorithms, strategies and methodologies to support model generation for computationally intelligent software components. Prototype and optimize algorithms in a software language. Develop detailed design specifications to guild the implementation and qualification of the solution. Participate in architectural definition, design, prototyping, implementing and analysis of client/server applications. Develop test cases and strategies to demonstrate correct algorithm performance. Develop computational performance measures and testing strategies to demonstrate satisfactory execution times when solving realistic retail problems. Requirements: M.S. in Computer Science, Mathematics, Engineering or related field and two years experience in job offered or a related occupation such as software development. Competitive salary offered. Apply on-line at www.retek.com/apply. Be sure to include "CompWorld" as the source code.

Econnex has openings for Software Engineers with at least four years of experience. Job Duties: Research, analyze, design, develop, test and implement software systems and web applications using IBM WebSphere, MO Series, Java, Oracle and DB2, in UNIX, using transactional Web Infrastructure. Positions require a Bachelors degree or a Masters degree. Equivalent degree and experience is also accepted. Excellent Pay and Benefits. Mail resume with proof of work authorization and qualifications to: Peter Silas, EConnex, Inc., 38 West 21st Street, Suite 415, New York, NY 10010.

Software Engineer. Duties: Test & verify code for telecomm. PCS IT AD testing lab. Provide support to testing activities for key develop. efforts. Develop & maintain test guidelines, test cases & testing scripts using Segue & Rational. Determine test require. & coord. test scheduling. Conduct systems integration tests & load testing. Requires: M.S. in Comp. Sci., Info Systems, Eng. or related field. Coursework must include. classes in: Data Mgmt. Systems, Oper. Systems & Object-Oriented Prog. Send resume (no calls) to: Danielle David, CTG, Inc., 13220 Metcalf Ave., Ste. 140, Overland Park, KS 66213.

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SENIOR PROGRAMMER/ANALYST to lead a team in the analysis, design, development, testing, implementation and maintenance of mainframe and windows based application software for the credit card and retail industry using CICS, COBOL, Visual Basic, JCL, Pro C, RDBMS, DB2, Oracle, DataCom, ROSCOE, TSO, Platinum Tools, TOAD, TMON, File-Aid, IMS and Xpeditor. Require: B.S. degree in Computer Science/Engineering, or a closely related field with two years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Sophie Mookerjie, President, Software Paradigms International, Inc., 3901 Roswell Road, Suite 134, Marietta, GA 30062; Attn: Job KB.

SENIOR SOFTWARE ENGINEER to design, develop, maintain, enhance and support client/server enterprise application software using C, C++, 4GL/Visual Basic, Baan ERP & 4GL software, Oracle database, SOL, PL/SOL, Unify / ACCELL, PowerBuilder, MS SOL Server and TOAD under UNIX and Windows operating systems; Develop and enhance interfaces and incorporate new modules into existing systems; Provide on_call technical support. Require: Master's degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered or as a Systems Analyst. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Shri Gangal, Syspro Technologies, Inc., 3091 Holcomb Bridge Rd., Suite H2, Norcross, GA 30071; Attn: Job MM.

Software Engineer (Atlanta, GA) to plan, conduct and supervise difficult development and design assignments for a variety of custom solution projects. Work directly with client to define/negotiate project specifications. Compile customer modification estimates for clients. Perform high level and low level design, development and code reviews. Supervise the development and execution of unit tests, working in C++ and MSPL. Work in Windows NT environment with UNIX emulator. Use VC++ to generate executables in C++ to calculate design parameters interacting with multidimensional databases. Requirements: M.S. in Computer Science, Mathematics, Engineering or related field and two years experience in job offered or a related occupation such as software development. Competitive salary offered. Apply on-line at www.retek.com/apply. Be sure to include "CompWorld" as the source code.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Oracle 8i, PL/SOL, Oracle eBusiness Suite 11i and BAAN. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Oracle 8i, PL/SOL, Oracle eBusiness Suite 11i and BAAN. Salary: $66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: ES Supervisor, Indiana County Job Center, 300 Indian Springs Road, Indian, PA 15701, Job No. WEB279671.

Software Engineers needed: Seeking qualified candidates possessing MS/BS or equiv. and/or rel. work exp. Duties include: Analyze, design, develop and test new & existing object oriented internet and web based software applications and consult with clients, users and management personnel to determine technical requirements. 1 year of the req. exp. must include working with Java, EJB and UML. Mail res., ref and sal. req. to: Kind Attention: Luis Ferrer, Hotel Distribution Network, 121 East 1st Street, Sanford, FL 32771.

SENIOR SOFTWARE ENGINEER to design, develop, deploy and maintain application software using Java, J2EE, Servlets, JSP, XML, Oracle, C++, WebSphere and Visual Age for Java on UNIX and Windows platforms; Mentor junior programmers and engineers. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with five years of progressively responsible experience in the job offered or as a Programmer/ Analyst, or Programmer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Ravi Kandimalla, President, Everest Computers Inc., 900 Old Roswell Lakes Parkway, Suite 300, Roswell, GA 30076; Attn: Job PB.

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ROI

tance, Dart said, HVB America — a division of HVB Group, a Munich, Germany-based financial services firm — has succeeded in its transition. One key step was requiring business managers to make their cases for IT investments to peers who sit on a management board, he added.

Accounting for IT

Chicago-based Bank One Corp. began requiring its business units to prove the value of IT investments last year, said Nancy Toms, a technology program director at the company. As part of the change, Toms said, she and her IT counterparts have been prodding business managers "to begin including IT projects within their own budgets," including calculations of the anticipated ROI.

However, Toms said, she has run into problems similar to the ones encountered by Dart. For example, Bank One's IT staffers frequently have to go back to business units after a technology project has been

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What to Do

Gartner analysts offered the following tips for IT managers:

■ If you don't already have one, **set up an IT governance board** made up of IT and business leaders.

■ Instead of just aligning IT with the business, **integrate technology operations** with business units.

■ Educate business leaders by **giving them background information** about things such as IT funding requirements and ongoing technology costs.

■ If business managers are resistant to taking over ROI duties, **communicate to them** that they can derive more value from their IT investments by taking ownership of these initiatives.

Financial Services Firms Include IT in Cutbacks

As the financial services industry continues to downsize because of stock market declines and the sluggish economy, IT departments aren't being spared from cost reductions and lay offs.

"Everyone's just interested in saving money and getting returns. And the interest in emerging technologies has really dwindled," said Avivah Litan, an analyst at Gartner Inc. in Stamford, Conn. Like other analysts, Litan predicted that the job cuts on Wall Street are far from over.

For example, New York-based Metropolitan Life Insurance Co. last week announced plans to lay off 1,900 employees, including 340 workers in operations and technology positions. That fol-

lows recent cutbacks at Boston-based Fidelity Investments and New York-based Credit Suisse First Boston Corp.

Joe Gottron, CIO at Huntington Bancshares Inc. in Columbus, Ohio, said the $25 billion regional bank holding company cut its 480-person IT division by 10% last February. The cutbacks were mostly related to the sale of the company's Florida franchises, but Gottron said they also targeted the application development and project management areas.

Gottron said he's looking for ways to simplify and consolidate systems "so that we can leverage common skill sets." The bank is also trying

to avoid new IT projects involving proprietary architectures that "box us in the corner," he added.

Fidelity this month laid off 1,695 employees, or 5% of its workforce. Anne Crowley, a spokeswoman for the mutual fund company, said its IT operations were affected by the layoffs, as was "virtually every business unit."

Crowley said the boom market of the 1990s prompted Fidelity to make IT investments in areas that were growing at unprecedented rates, such as its online brokerage business. "Now that you have some market pullback, you need to address your resources accordingly," she said.

– Lucas Mearian

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pitched to ask for ROI data. But now that the effort is nearly a year old, she said, "we're starting to see some acceptance and understanding that this is the way things are."

A business manager at a New England-based insurance company said she also thinks that business units should take charge of proving ROI — but for altogether different reasons. "IT professionals at our company aren't good at making these kinds of calculations," said the manager, who asked not to be identified.

But because ROI calcula-

tions have predominantly been left in the hands of IT departments until now, some attendees questioned whether business units will be receptive to accepting that burden.

"Business should take responsibility for demonstrating the value of IT, but I'm expecting that there will be some political battles," said Paulette Thompson-Heron, director of IT at Lippincott Williams & Wilkins, a Baltimore-based publisher of information for medical professionals.

Mary Knapp, an executive assistant to the chief technolo-

gy officer at DaimlerChrysler Corp., said the automaker is requiring the business side to get more involved in cost-justifying IT investments. Still, Knapp isn't sure whether DaimlerChrysler's business units "will ever take complete control of that responsibility."

"I think it's natural that business units will take on responsibility for demonstrating the value of IT investments, but I don't expect this to evolve for at least four or five years," said David Du Croix, an IT manager at Tu Delft University in the Netherlands.

However, as business managers become increasingly IT-savvy and push for technology projects, it's only natural that they would take on the task of demonstrating the value that investments could yield, said Barbara Gomolski, an analyst at Stamford, Conn.-based Gartner. "He who pays becomes accountable," she noted. ▶

HOLDING THE LINE

Some IT managers at Gartner conference said they're struggling to meet service levels while cutting costs:

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Wintel

quicker advantage of emerging applications, which tend to be written for Windows first, Willems added.

Fortis is moving some, but not all, of its Unix and mainframe applications for many of the same reasons.

"The largest single expense for any insurance company is IT," said Roger Jones, CIO at Fortis. "If you are as committed as Fortis is to keep health care costs down, it is very important to have the most cost-effective systems."

Intel-based enterprise serv-

ers offer not only lower costs compared with Unix and mainframe systems, but also better integration with Fortis' client-side applications, which all run on Windows, Jones said.

Fortis is migrating a key underwriting application and its data warehousing applications from Unix servers to two I6-processor ES7000s and one 32-processor ES7000 running the Windows Datacenter Server operating system. That switch is from an HP-UX and IBM AIX environment. The company is also moving its claims processing and core administrative systems from its mainframes to the Wintel platform.

Despite such moves, don't expect Wintel big iron to start widely replacing high-end RISC Unix servers anytime soon, analysts said.

The relative immaturity of Intel's 64-bit architecture and

SYSTEM BASICS

Unisys ES7000

■ Supports up to **32 Intel processors** (including Itanium).

■ Supports up to **32** partitions.

■ Can run a mix of **Unix, Linux and Windows** workloads.

■ Ranges in price from **$100K to more than $1 million**.

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of related software means most of the migrations that take place from Unix and mainframe environments will be very selective and slow, said Rich Partridge, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y.

"Intel-based systems certainly do have an alluring initial procurement cost," Partridge said. But "a lot will depend on the workload" that's being considered for migration, he added.

For now at least, the primary use for large Wintel servers such as those offered by Unisys will be to consolidate smaller Intel-based servers, Partridge added. ▶

FRANK HAYES ▪ FRANKLY SPEAKING

Predict the Present

I'M LOOKING at a pile of predictions from Gartner's ITxpo, dating back to 1997. Here's Microsoft CEO Steve Ballmer saying with a straight face that Word and Exchange will be ported to Palm handhelds. There's Netscape's then-CEO Jim Barksdale telling the crowd that push technologies will become big business for Internet companies. Over here is Gartner analyst Bill McNee pronouncing that 30% of mission-critical systems won't make the deadline for Y2k. There are lots more, but you get the idea.

No, these predictions didn't come true. But remember the first rule about what people say at the annual October prognost-a-thon: They're not really predictions at all.

Vendor CEOs don't come to ITxpo to predict. They come to float trial balloons, promote projects and grab mind share. So when Sun Microsystems' Scott McNealy talks up bar-coding babies or Intel's Craig Barrett says technology "doesn't recognize economic recessions," they're not really looking into the future. They're just trying to generate some buzz.

And Gartner's own analysts? They're not really trying to peer ahead either. The dirty little secret about these ITxpo predictions is that they aren't about next year, or two or five years from now. They're about this year, and what these folks think you should be doing in your IT shop right now.

Why else would one of Gartner's top predictions this year be that IT will eliminate millions of jobs, starting in two years? Think about it: Corporate executives don't want to cut jobs two years from now. They're cutting jobs today. They've *been* cutting jobs for two years. Two years from now, they're counting on business having rebounded, so they'll be *hiring*, not laying people off — IT or no IT.

So is this prediction useless? Nope. Layoffs have mind share today. Pitching IT purchases as a way of cutting head count is bound to resonate — even if that two-years-in-the-future time frame makes no sense.

Or consider another Gartner ITxpo prediction: Adding bandwidth will soon become more cost-effective than adding computing. Hey, it already is — bandwidth costs have been in free fall for years. It's plentiful and cheap.

That bandwidth glut exists because corporate IT hasn't really taken advantage of it. Pointing that fact out isn't likely to goose IT shops into buying bandwidth instead of more servers. But pretending it's a prediction makes it sound like a hot, forward-looking idea, doesn't it?

Here's another one: In the future, business units will get responsibility for application decisions and cost justification. What future? It's already true in many businesses, and has been for years. It's not always a formal responsibility of the business unit, but it's the only approach that makes sense — after all, IT doesn't know exactly what the business unit needs, or exactly how an IT project will pay off.

As usual, the "prediction" is just a Gartner analyst's way of telling you that if you're not doing it, you're already slipping behind the curve.

Offended? Don't be. These analysts aren't really trying to scam you. They're trying to frame practical, usable recommendations in a way that rings true for your boss.

You know how tough it is right now to get the boss moving on anything at all. If taking that practical advice and tricking it out as Gartner's vision of the future gives him something he wants to believe and gets him off the dime — well, why not?

Besides, if Gartner analysts could *really* predict the future, it wouldn't do us much good anyway.

If they could, at ITxpo 1997 they'd have told us that the U.S. would sail though Y2k without a hiccup — but then see a dot-com collapse, a stock-market slide, a lingering recession, a terrorist obsession and a spiral into war in the Mideast.

And who'd have wanted to believe that? ▶

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